HAM RADIO OUTLET®

WORLDWIDE DISTRIBUTION

Winter 1999

Communication Equipment Catalog

Coast to coast, millennium to millennium...
YAESU
...leading the way.SM
NEW FROM YAESU
FT-100
VX-5R
FT-90R
VR-500
FT-2600M

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Serving You From Twelve Locations

LEGACY

THE *QST* BOTTOM LINE:

"With the addition of yet another band (70 cm), more power on 2 meters and the incremental improvements made with each new version of this popular transceiver, perhaps the '706 has reached its zenith. There's not much left to improve."–QST, 7/99

IC-706 SERIES

The most versatile series of compact, multi-banded rigs ever made.

PROVEN PERFORMANCE:

"The first thing I did when I flipped the radio on was work a station in Ukraine on 20m. It is a great rig! I must say that I underestimated it before, it really blew my mind."
– Jon Williams, KB4NS
IC-706MKII radio winner, 3/99

"Great portability vs. performance ratio. It's great to have a radio where you can talk on your local repeater, work on your mobile DXCC total and still not miss out on six meter openings!"
– Kevin Olson, K3OX

"I enjoy everything about the IC-706MKII; size, ease of operation, power."
– Richard Lemme, K9FA

"My little IC-706MKII goes with me everywhere and is on 24 hours a day."
– James H. Weidner, K2JXW

"The DSP unit works great for knocking out the heterodynes from the foreign broadcast on 40 meters. Thanks for making such a great compact rig."
– Bill Youse, N6DZS

"706 -- the love of my life."
– Gary Mashburn, KF4PTW

The Funmobile will be out visiting the 3 "H's": **H**am clubs, **H**amventions, and **H**RO stores. To find out when and where, visit ICOM America's Website: <www.icomamerica.com>.

NEW IC-706MKIIG

THE BEST GETS EVEN BETTER

More power, 440 MHz, and still more features! The new IC-706MKIIG has 50 watts on 2 meters, 20 watts on 440 MHz, DSP as standard equipment, auto repeater, CTCSS, plug and play filters, easy menu operation, and backlit keys. Tried, tested and proven, the 706 series is your best choice for a complete ham rig.

NOW WITH DSP AS STANDARD EQUIPMENT

IC-706MKII

IN 1997, HAMS WERE "WOW"ED AGAIN

The IC-706MKII added still more features and more power. Today, the '706 series radios have earned a reputation among hams as rugged, hard working rigs. They perform as well on a serious DX'pedition as they do in a car or in a contest shack.

ICOM options required for PC operation:
CT-17 Level Converter
OPC-478 Cable
Third party software

PC Ready!

IC-706

WAY BACK IN 1995...

The ICOM IC-706 was introduced to the amateur community. Never before had so many features and so much fun been put together in such a small package. HF, 6 meters AND 2 meters in one box? Yes.

Join the thousands of hams who use ICOM's '706 series radios, and GET IN ON THE FUN! Contact HRO today, or call our 24-hour free brochure line: **425-450-6088**

ICOM®

www.icomamerica.com

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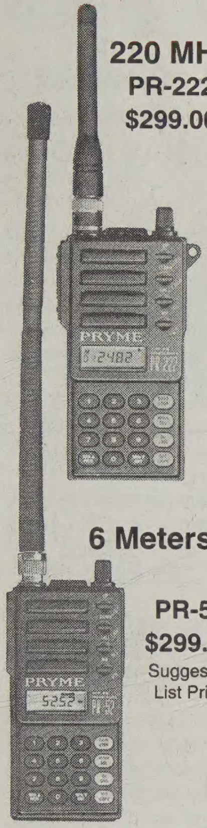
ADI

Handhelds

HRO
Discount Price
$229.95



220 MHz
PR-222
$299.00

6 Meters

PR-52
$299.95
Suggested List Price

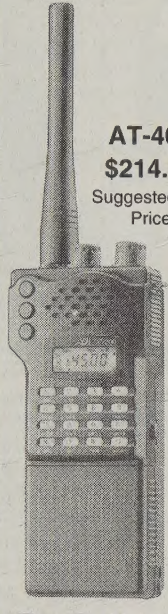
HRO
Discount Price
$219.95

These compact, rugged handhelds offer 5 watts output on 1.25 or 6 meters.

- PR-222 receives 216-228 MHz and transmits 222-225 MHz.
- PR-52 receives 40-54 MHz and transmits 50-54 MHz.
- 5 watts out with rechargeable NiCad battery included.
- CTCSS encode and decode.
- 40 memories.
- Programmable repeater shift.
- 16-button keypad with DTMF encode.
- MARS modifiable.

HRO
Discount Price
$199.95

440 MHz



AT-400
$214.95
Suggested List Price

The AT-400 transmits on the 70 cm band and receives 400-480 MHz. It has output power up to 5 watts using the optional battery or external 13.8 V power supply.

- 20 memories.
- 16-digit DTMF tone pad with monitor.
- CTCSS encode/ decode included.
- Program non-standard shifts.
- VFO/memory scan.
- Battery save; automatic power off.
- Dual frequency watch.
- Backlit LCD display and DTMF pad.
- One-touch open squelch check.

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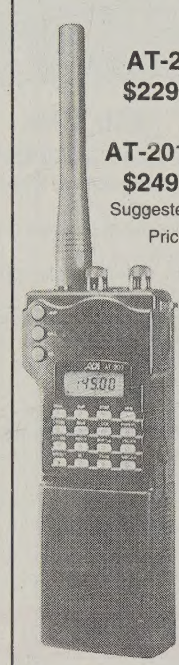
HRO
Discount Prices
AT-201 - $149.95
AT-201HP -
$189.95

2 Meters



AT-201
$229.95

AT-201-HP
$249.95
Suggested List Price

- The AT-201 transmits 144-148 MHz; receives 130-179 MHz.
- Backlit key pad.
- 40 memories are soft-sectored as 20 memories in each of 2 banks. Memories store any transmit offset and CTCSS tone.
- Automatic repeater offset for quick operation. Enter the desired frequency and + or -.
- Full range or 1 MHz scanning is available.
- Memory group covers groups of 10 or all 40 memories.
- Display shows either channel or frequency.
- Can be cloned using a hardware key.
- Compatible with all AT-200 / 400 accessories.

HRO
Discount Prices
AT-600 $199.95
AT-600-HP -
$289.95

Dualband

AT-600
$389.95
Suggested List Price

- Simultaneous reception on 2m / 70cm.
- Crossband repeater function.
- Amateur transmit/ receive coverage plus extended range reception. AM receive from 108-137 MHz AM (aircraft), 138-174 MHz FM, 330-499 MHz FM, 896-999 MHz FM.
- MARS / CAP capable.
- 200 memories (120 with alphanumerics).
- Up to 5 W with 12 VDC battery.
- Clones other AT-600's and is PC programmable with optional software.
- CTCSS encoder/ decoder built-in.
- CTCSS tone scan.
- DTMF tone grab.
- Backlit keypad.

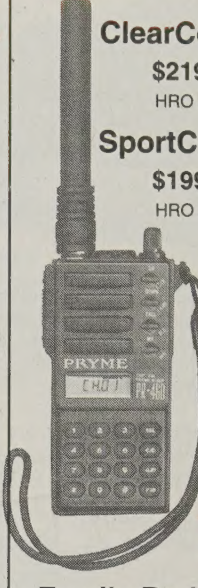
PRYME®

Radio Products

Family Radio

ClearConnect
$219.95
HRO Price

SportConnect
$199.95
HRO Price



NEW!

Family Radio Plus
PR-460

Most Family Radio Service transceivers have limited range because they provide only one-half watt output power. The SportConnect™ and Clear Connect™ radios from Pryme provide 4-watts output power with a transmit range of up to 5 miles.

These radios operate on frequencies within the General Radio Service (GMRS). A license is required for using the radios but obtaining a GMRS license is easy and can be done on-line. One license covers you and everyone in your immediate family.

- 4 watts output power in three user selectable power settings (4, 2, or 1 watt).
- 38 CTCSS Interference Eliminator Codes which are user programmable.
- One touch access to the 462.675 emergency channel.
- Channel scan, dual watch and priority scan modes.
- Low battery warning.
- 8 simplex channels on SportConnect .
- 23 channels on ClearConnect for simplex and repeaters.

MOBILES

ADI

NEW!

440 MHz

AR-447

$299.95

2 Meters

AR-147

$199.95

HRO Discount Prices

Our most advanced family of mobile radios have all the features expected in a modern mobile transceiver including AM air receive (AR-147 only), direct frequency entry, and 81 memory channels. Includes both CTCSS and digital coded squelch.

- 3 power settings: 50 / 10 / 5 on the AR-147, 35 / 10 / 5 on the AR-447.
- Receive range: 118-171 AR-147, 400-480 AR-447.
- 9 DTMF autodialer & built-in redialer.
- Direct frequency entry using multi-function DTMF mike.
- PC programmable with optional software.

NEW!

AR-247

222 MHz

$299.95

HRO Price

ADI now introduces a 222 MHz single band mobile radio. The ADI AR-247 has a collection of features that will make operation on the 222 MHz band a lot of fun!!

- Extended receive capability of 118-180 MHz in FM and AM modes.
- Three power settings, 50, 100 and 5 watts.
- 80 memory channels plus a call channel.
- CTCSS encode and decode built-in.
- Auto repeater offset.
- 9 DTMF AutoDial memories plus a built-in redialer for autopatch.
- User programmable Time Out Timer.
- Programmable band and memory scan modes.
- DTMF paging.
- Dual Frequency Watch.
- Direct frequency entry using the multifunction DTMF microphone.
- Auto power off.
- Frequency or channel display.

The FCC has not yet approved the AR-247. It may not be offered for sale or lease until the approval of the FCC has been obtained.

HRO
Discount Price
$239.95

440 MHz

AR-446 – $345.00

Suggested List Prices

- 40 memory channels plus one call channel.
- Band scan, memory scan, program scan.
- DTSS with page function.
- 41 independent CTCSS memory setups.
- Programmable VFO.
- Multifunctional microphone with DTMF keys.
- 35 watts maximum output.
- 30 minute transmission time-out.
- S-meter squelch.
- Dual watch operation.
- Built-in to the radios:
  CTC 146 – CTCSS unit
  DTS 146 – DTMF unit

FM Repeater

NEW!

MX800-L

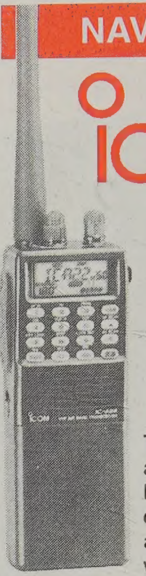
The MX800-L high-specification, ultra-reliable, 50 watt repeater is made from separate modules housed in solid machined aluminium enclosures for minimum conducted and radiated emissions and minimal susceptibility to external RFI and EMI.

The transmitter utilizes an optimized, band specific exciter module with an ultra wide RF bandwidth of 66 to 500 MHz. The high sensitivity receiver can withstand blocking of over 90 dB, spurious responses are better than -90 dB and an intermod figure better than 80 dB. Most frequency bands are available from 66 to 500 MHz. Contact your nearest HRO dealer for more details and pricing.

AVIATION

NAV / COM

ICOM



IC-A22 Super Compact Portable NAV / COM

Call for HRO Prices

This compact, rugged aviation transceiver has excellent audio quality on the COM side and a VOR transceiver with CDI function on the NAV side. NAV features include:

- Display of radial heading TO and FROM VOR stations.
- CDI shows deviation from course.
- 200 navigation channels.
- ABSS identifies direct radial to a VOR.
- Semi-duplex allows you to contact flight services while receiving VOR signals.

Ergonomic keypad controls all functions. A rotary control allows quick tuning of all frequencies and memories. This radio has an alpha numeric display, built-in sidetone function, 50 memories, one-touch selection of the 121.5 MHz emergency frequency, scanning, VHF marine weather reception; 12-15 VDC power operation with optional power cord; 5 W output.

IC-A4
Airband Portable COM

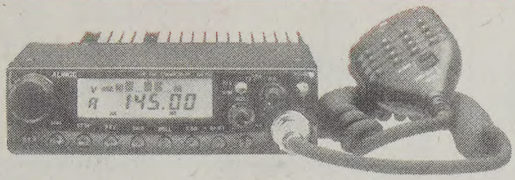
The IC-A4 is a low cost, light weight and compact portable for providing reliable communications for pilots. The channel name function allows you to assign 5-character names to each channel. Transmits and receives on all 760 aviation channels. Has 2 scanning modes.

IC-A3
Airband Portable COM

This compact 760 COM channel airband transceiver provides easy access to all functions via its ergonomic keypad. A rotary control tunes frequencies and memories. The rugged IC-A3 has an alpha numeric display, built-in sidetone function, 50 memories, one-touch selection of 121.5 MHz emergency frequency, scanning, VHF marine weather reception; 12-15 VDC power operation with optional power cord.

ALINCO VHF / UHF MOBILES

Single Band Mobiles



DR-150T
2m – $269.95

DR-150TQ
2m – $289.95
HRO Discount Prices

- 50 watts high output, 25 watts medium, and 10 watts low.
- Receives 108 to 173.995 MHz and 440 to 449.995 MHz.
- Transmits on 144 to 147.995 MHz.
- Two VFO's.
- Channel Scope (Visual Search™).
- 100 memory channels.

DR-140T
2m – $219.95

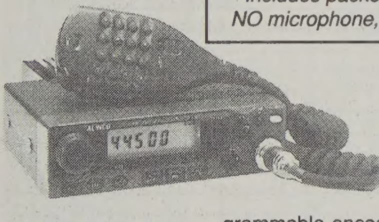
DR-140TQ
2m – $199.95

DR-140TPKT
2m – $179.95
HRO Discount Prices

- 51 memory channels store splits and CTCSS tones.
- Cable cloning.
- Alphanumeric display with up to seven characters.
- Aircraft band receive with automatic shift to AM.
- Channel number display.
- Tone burst included.

TQ Models
Have encode and decode tone squelch board built-in.

PKT Models
For Packet radio only. Includes packet cable, but NO microphone, NO bracket.



DR-430TQ
440 MHz
$269.95
HRO Discount Price

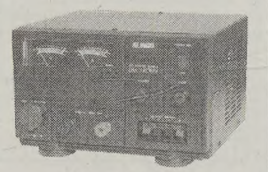
- 35 watts output with a HI / LO switch.
- Built-in programmable encode and optional decoder allow restricted access.
- 20 multifunction memories are fully programmable. Expand to 100 memories with optional EJ-19U.
- Highly visible color LCD display.

Accessories

NEW! Switching Power Supply

DM-330MV

Super compact, lightweight power supply is great for portable operations. Provides 32 amps peak, 30A continuous. Variable output 5-15 VDC. Preset voltage function. Patent pending noise offset circuit eliminates pulse noise. Short circuit protection. Convenient front panel connections. Cigarette plug socket.
HRO Price $199.95



DM-340MVT Power Supply

Provides 35 amps peak, 30A nominal. Variable output 1-15 VDC. Convenient front panel connections.
HRO Price $159.95

EDX-2 Automatic Tuner

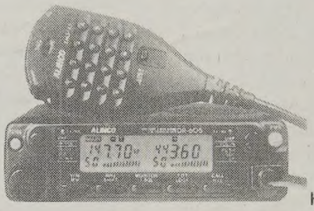
Mates with DX-70/77 radios. Tunes wire antenna 8-80ft. Use for base, mobile, or marine.
HRO Price $299.95

Dual Band Mobiles

DR-610T – $479.95
DR-610TQ – $499.95
HRO Discount Prices

The 2m / 70 cm DR-610T is ideal for mobile or base station operation. Mount the front panel away from the radio if you wish.

- 50 watts VHF / 35 UHF.
- Built-in duplexer.
- Built-in CTCSS tone encoder. Decoder is optional in T; built in to TQ.
- Extended Receive Range: 108-174 MHz (including AM) and 420-470 MHz.
- Two VFO's.
- Airband receive standard.
- Band, programmed, or memory scan.
- 5 channel auto dialer.
- 120 memories
- 9600 bps ready with built-in I/O jack.
- ChannelScope™.
- Cross band repeater function.



DR-605T
$379.95

DR-605TQ
$379.95
HRO Discount Prices

The DR-605 models are 2m / 70 cm transceivers.

- 50 watts VHF and 35 watts UHF.
- Built-in duplexer.
- Built-in CTCSS tone encoder. Decoder is optional in T; built in to TQ.
- Extended Receive Range: 136-174 MHz (including AM) and 420-470 MHz.
- Channelized display.
- 9600 BPS ready.
- Cross band repeater function.
- Crossband memory.
- Band, programmed, or memory scan.
- 50 memory channels per band memories plus call channel.
- Tone burst function (1450, 1750, 2100 Hz)

Alinco Mobile Accessories

Model	Description	DR-130T / DR-430T DR-M06T / DR-M03	DR-140T	DR-150T	HRO Price
EJ-19U	Memory Expansion	✻			$28.95
EJ-20U	Tone Squelch Unit	✻	✻	✻	$41.95
PC-15B	Power Cord	✻		✻	$10.95
MB-130	Mounting Bracket	✻	✻	✻	$19.95

Alinco Mobile Specifications

Model	Primary Use	Frequency Range	Power	Current Drain Xmit	Current Drain Rec	Power Out	Memories	Ant Z	Mike Z	Sensitivity	Height in	Width in	Depth in	Weight lbs
DR-140T/TQ	Mobile	2 m	13.8 VDC	10.5 A	800 MA	50 W	51	50 Ω	600 Ω	<.16 µV at 12 dB	1.6	5.5	6.08	1.9
DR-150T/TQ	Mobile	2 m Trans	13.8 VDC	10 A	600 mA	50 W	100	50 Ω	600 Ω	<.16 µV at 12 dB	1.6	5.6	6.2	2
DR-430TQ	Mobile	440 MHz	13.8 VDC	9.5 A	500 mA	35 W	20*	50 Ω	600 Ω	<.16 µV at 12 dB	1.6	5.5	6.75	2.42
DR-605T/TQ	Mobile	2m/440 MHz	13.8 VDC	11.5 A	1.2 A	50 W/35 W	50	50 Ω	600 Ω	<.16 µV at 12 dB	1.6	5.6	7	2.43
DR-610T/TQ	Mobile	2m/440 MHz	13.8 VDC	11.5 A	1.2 A	50 W/35 W	120 †	50 Ω	600 Ω	<.16 µV at 12 dB	1.6	5.6	6.5	2.45
DR-M03SX	Mobile	28-29.7 MHz	13.8 VDC	3 A	800 MA	10 W/1 W	100	50 Ω	600 Ω		2.0	5.51	4.52	2.5

* Expand to 100 with optional EJ-19U †Expand to 240 with optional EJ-23U

ALINCO HF / 6m / MARINE MOBILES

HF Transceiver

DX-77T

$819.95

HRO Discount Price

The DX-77T transmits on ham bands 10 – 160 m in SSB, CW, AM, FM, and data. It has a general coverage receiver 150 KHz – 30 MHz.

- Output on SSB, CW and FM is 100 watts; on AM, 40 watts.
- 100 memories store mode, split, RF attenuation, frequency, AGC, gain.
- Two VFOs plus memory mode.
- Built-in speech processor, IF shift, CW audio filter, electronic keyer.
- Computer control option: ERW-4.
- Full QSK, 7-step semi break-in, or auto break-in CW modes.
- CTCSS tone access for 10m FM.
- Convenient front panel jacks for key, headphones, or external speaker. Rear panel connectors for external amplifier, antenna, EDX-2 antenna tuner, power, computer control.

6 or 10 Meters

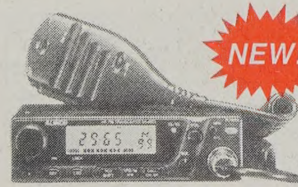
DR-MO6TH

6 Meters – $279.95

HRO Discount Price

Covers the full 6m band with 20 watts output. This rig has 100 memory channels and includes CTCSS encoder.

NEW!



DR-MO3

10 Meters – $179.95

HRO Discount Price

The DR-M03 covers 28 to 29.7 MHz with selectable 10W or 1 W output. Set repeater offsets 0 to 15.995 MHz. It has 100 memory channels and 50 CTCSS encoders. Decoder (EJ-20U) is optional. Programmed memory scan passes over empty memories.

HF & 6 Meters

DX-70TH – $839.95

HRO Discount Price

- Includes general coverage receiver.
- All-mode.
- 100 watt output from 1.8-30 MHz. and on 6 meters.
- CTCSS for 6 & 10 m.
- 100 memories.
- 10 memory group scans.
- Dual VFO.
- Detachable control head for remote mounting aids in mobile installations.
- Full QSK and auto break-in for CW.
- Built-in narrow band filter.
- Built-in RF preamplifier, speech processor, noise blanker.
- Size 2.25"(H) x 7"(W) x 9"(D).

Marine Radio

NEW!

DR-MA1

$149.95

HRO Discount Price

This VHF FM Marine transceiver features 25 watts, 54 channels TX and 86 RX. USA and international operating modes. Dual Watch mode allows the operator to monitor channel 16, the selected working channel and the weather channel. Weather Alert feature provides automatic switching to weather information frequencies.

- High / Low power output (25w/1w).
- Time-out timer.
- Adjustable squelch.
- Loud, clear audio monitors.
- Large display.
- 10 weather channels.
- Includes mounting bracket, power cord, mike.
- Connector for external speaker.

Handheld Accessories

MODEL	DESCRIPTION	C5	F1T	F1T-HP	G1T	G5	S11 S41	V5	X10	162 TD	162T	180T 180T-HP	191T 191T-HP	195T	280T	560 TA	580T	HRO Price
EBP-24N	Ni-Cd Battery (7.2V 1200 mAh)											*			*	*	*	$78.95
EBP-26N	Ni-Cd Battery (7.2V 700 mAh)											std			*	*	*	$41.95
EBP-28N	Ni-Cd Battery (12V 700 mAh)											*			*	*	*	$68.95
EBP-33N	Ni-Cd Battery (4.8V 650 mAh)					*			*				*					$63.95
EBP-34N	Ni-Cd Battery (4.8V 1200 mAh)					*			*				*					$82.95
EBP-35N	Ni-Cd Battery (7.2V 900 mAh)					*							*					$95.95
EBP-36N	Ni-Cd Battery (9.6V 650 mAh)					*							*					$67.95
EBP-37N	Ni-Cd Battery (4.8V 700 mAh)					*							*					$34.95
EBP-45N	Ni-Cd Battery (6.0V 700 mAh)							*										$47.95
EBP-46N	Ni-Cd Battery (9.6V 600 mAh)							*										$65.95
EBC-6	Mobile Bracket		*	*	*		*	*				*	*	*				$22.95
EDC-16B	Filtered DC Cig. Cable		*	*	*			*		*	*	*	*	*	*	*	*	$22.95
EDC-36	Filtered DC Cig. Cable	*	*	*	*			*		*	*	*	*	*	*	*	*	$22.95
EDC-37	13.8 volt power cable	*	*	*	*			*					*	*	*		*	$7.95
EDC-43	Cigarette Lighter Cable		*	*	*			*		*	*	*	*	*	*	*	*	$8.95
EDC-45	Quick Charger		*	*						*	*	*				*	*	$99.95
EDC-49	Wall Charger											*					*	$23.95
EDC-60	Rapid Charger												*					$94.95
EDC-63	Wall Charger												*					$24.95
EDC-93	Wall Charger							*										$23.95
EDH-11	Dry Cell Case											*			*	*	*	$10.95
EDH-12	DC Jack Adaptor for ext pwr											*			*			$10.95
EDH-16	Dry Cell Case					*			*				*					$10.95
EDS-7	2 Pin Mic Adapter	*																$10.95
EJ-14U	50 Memory Channel Unit											*			*			$21.95
EJ-15U	200 Memory Channel Unit											*			*			$29.95
EJ-28U	CTCSS Decoder Unit												*					$42.95
EME-4	Ear/microphone w/PTT				*												*	$34.95
EME-6	Earphone		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	$11.95
EMS-8Z	Speaker Microphone		*	*	*	*	*	*		*	*					*	*	$44.95
EMS-47	Speaker Mic (req EDS-7)	*	*	*	*	*	*	*				*	*	*	*	*	*	$24.95
EMS-50	Round Speaker Mic	*																$63.95
EMS-51	Round Speaker Mic		*	*	*	*	*	*		*	*	*	*	*	*	*	*	$63.95
EME-12	Headset w/ear hook VOX & PTT		*	*	*	*	*	*				*	*	*	*	*	*	$70.95
EME-13	Headset with VOX		*	*	*	*	*	*				*	*	*	*	*	*	$70.95
EME-15	Tie pin microphone		*	*	*	*	*	*				*		*	*	*	*	$55.95
EME-16	Tie pin microphone	*	*	*	*	*	*	*		*	*	*	*	*	*	*	*	$25.95
EME-17	Earplug Headset	*	*	*	*	*	*	*		*	*	*	*	*	*	*	*	$25.95
EME-18	Earphone	*																$10.95
ESC-18	Leatherette Case EBP-24N											*						$14.95
ESC-19	Leatherette Case EBP-28N											*						$16.95
ESC-23	Soft Case (EBP-30N)				*													$21.95
ESC-24	Soft Case (EBP-31N/32N)				*							*						$10.95
ESC-27	Soft Case						*											$16.95
ESC-28	Soft Case (EBP-37N)					*			*				*					$10.95
ESC-29	Soft Case (EBP-33N)					*			*				*					$10.95
ESC-30	Soft Case (EBP-34N/35N/36N)					*			*				*					$10.95

HANDHELDS

DJ-S41T

440 MHz - $149.95

DJ-S11T

2m - $149.95

Suggested List Prices

Special!! $88.00 Each

These tiny communicators cover 2 meters or 440 MHz. Operate from your car with the optional EDH-18.

- Transceive on 144-148 MHz (DJ-S11T); 425-450 MHz (DJ-S41T).
- 20 memories plus call channel will hold frequency, 50 CTCSS tones and offset.
- Less than 5" high and 2.25" wide.
- Use 3 AA or NiCad battery pack.
- Power out 340 mW.
- Large illuminated display.
- Pivoting antenna.

Family Radio

DJ-S46T

$96.95

HRO Discount Price

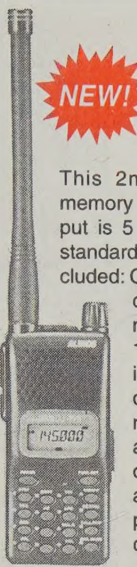
No license required to use this hand-held with 14 channels, 340 mW output power, 50 CTCSS tone encoder, scan, page tone. Runs on 3 AA batteries or NiCads. Great for family outings.

DJ-195T

NEW!

$199.95

HRO Discount Price



This 2m HT has 40 memory channels. Output is 5 watts with the standard battery. Also included: CTCSS encode/decode, alphanumeric display, 13.8 VDC direct input, direct frequency input, S-meter, autodialer, cable cloning, theft alarm and experimental mosquito repeller.

DJ-191T

2-Watt 2m – $179.95

DJ-191T-HP

5-Watt 2m – $199.95

HRO Discount Prices

This durable, slim-line HT receives 135-173.995 MHz. It has a huge lighted LCD display and effortless entry. Output: 1.5 W out with standard batteryand .5 W with 9.6 VDC or optional EBP-36N. Forty memory channels plus call channel store frequency, offset, shift direction, tone information, power level, DSQ setting. Features: CTCSS encoder, DTMF squelch encoder and decoder; 9 auto dialer memories with redial; cloning capability; automatic power off.

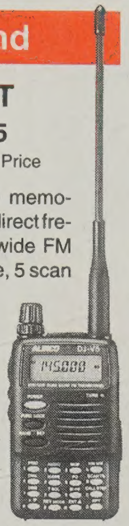
Dual-band

NEW!

DJ-V5T

$279.95

HRO Discount Price



This compact HT has 200 memories, alphanumeric display, direct frequency input, narrow and wide FM RX, CTCSS encode/decode, 5 scan modes, auto-dialer, SMA antenna connector. The receiver is expandable to 76 ~ 999.995 MHz (cellular blocked).

Credit Card Size

DJ-C5T

Dual Band HT

$169.95

HRO Price

Enjoy this compact 2m / 440 MHz dual band with an internal speaker. It has standard or non-standard splits, AM air band receive, and CTCSS encode and decode. Charge the lithium ion battery in only 2 hours with the snap-in charger.

HRO Discount Price $289.95

DJ-G5TH

$481.95

Suggested List Price

This rugged, mini-sized, rig is loaded with features: full-duplex, cross-band repeater capability; 5 watts out on VHF/ UHF with 13.8 VDC; 80 memory channels; Channel-Scope™; auto dialer with up to 20 memories; receives 108-173.995b (including AM) & 420-470 MHz. Memory scan, band scan, or programmed scan; cloning function; tone burst function; low battery indicator, automatic power off, and time out timer.

220 MHz (1.2m)

HRO Discount Prices 280TH $199.95

DJ-280TH

$279.95

Suggested List Price

A versatile HT covering the 1.2m band (222-224 MHz), this rugged, reliable radio is easy to use. It has advanced functions for maximum performance and flexibility.

- Accepts 13.8 VDC with optional EDH-12.
- Power output is 5 W.
- 10 memories standard.
- VFO and memory modes.
- Illuminated display.
- Non-standard repeater offset capable.

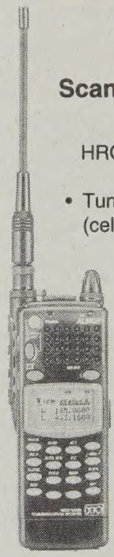
Receiver

DJ-X10T

All Mode Scanning Receiver

$349.95

HRO Discount Price

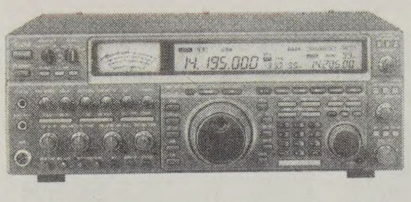


- Tunes 100 KHz to 2 GHz (cellular blocked).
  - 1200 memories.
  - AM, NFM, WFM, SSB, CW modes.
  - Alphanumeric channel designation.
  - PC programmable.
  - Dual VFOs.
  - Internal "Help" function.
  - ChannelScope™ spectrum display.

Alinco Handheld Specifications

Model	Frequency Range	Power	Current Drain Xmit	Current Drain Rec	Power Out **	Memories	Ant Z	Mike Z	Sensivity	Height in	Width in	Depth in	Weight lbs
DJ-280TH	222-224 MHz	13.8 VDC			4.5 W	10	50 Ω	2k Ω	<.16 µV at 12 dB	6.4	2.2	1.3	.0.89
DJ-C5T	2m / 440 MHz		300 mA	40 mA	300 mW	50	50 Ω	2k Ω	<.16 µV at 12 dB	3.7	2.2	0.417	0.18
DJ-G1T	2 m	13.8 VDC	1.5 A	120 mA	5 W	80	50 Ω	2k Ω	<.15 µV at 12 dB	4.5	1.9	1.4	0.79
DJ-G5TH	2m / 440 MHz	13.8 VDC	1.4 A	85 mA	5 W	80	50 Ω	2k Ω	<.16 µV at 12 dB	5.4	2.24	1.1	0.77
DJ-V5T	2m / 440 MHz	13.8 VDC	1.6 A	220 mA	5 W	200	50 Ω	2k Ω	<.16 µV at 12 dB	3.81	2.28	1.59	0.74
DJ-191T	2 m	13.8 VDC	1.5 A	24 mA	1.5 - 5 W	40	50 Ω	2k Ω	<.16 µV at 12 dB	6	2.25	1.08	0.66
DJ-191T-HP	2 m	13.8 VDC	1.5 A	24 mA	1.5 - 5 W	40	50 Ω	2k Ω	<.16 µV at 12 dB	6	2.25	1.08	0.66
DJ-195T	2 m	13.8 VDC	1.2 A	200 mA	5 W	40	50 Ω	2k Ω	<8dBµ	4.9	2.2	1.57	0.41
DJ-S11T	144-148 MHz	4.5 VDC	250 mA	33 mA	340 mW	20	50 Ω	2k Ω	<.15 µV at 12 dB	3.93	2.16	1.1	0.41
DJ-S41T	425-449.995 MHz	4.5 VDC	250 mA	33 mA	340 mW	20	50 Ω	2k Ω	<.15 µV at 12 dB	3.93	2.16	1.1	0.41

** Power output is determined by choice of battery pack.



IC-775 / DSP

$3418.95

HRO Discount Price

PC Ready!

The new digital IC-775 / DSP is designed especially for the serious DX'er who requires serious equipment. This radio is fun to operate but it was engineered from the ground up using high-quality components to offer performance you will find nowhere else. Icom's new DSP technology brings you unsurpassed signal quality. Control of the signals at the modulation stage produces high quality SSB transmit signals that analog methods can not compete with. Noise reduction at the demodulation stage results in crystal clear signals. This is revolutionary DSP technology at work for the serious DX'er.

- Digital noise reduction. The DSP provides outstanding signal-to-noise ratio for clean receive signals.
- Digital automatic AF notch.
- Digital low-pass, high-pass, ultra-narrow CW filters.
- Digital auto audio peaking filter.
- Twin passband tuning, AGC, and noise blanker.
- MOS-FET finals.
- Direct digital synthesizer (DDS) for frequency stability.
- High performance general coverage receiver.
- Built-in antenna tuner.
- Built-in memory keyer and QSK function.
- Data mode for RTTY, SSTV or packet operation.

HRO Accepts

MasterCard VISA DISCOVER

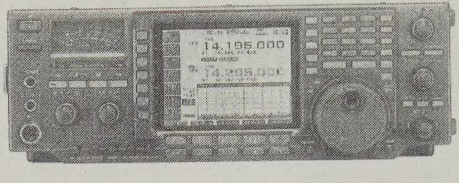
HRO's Discount Price $1999.95

IC-756

$2445.00

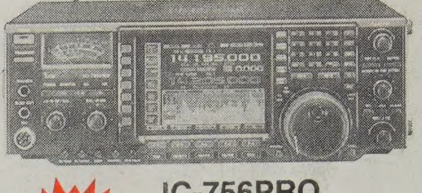
Suggested List Price

PC Ready!



The IC-756 offers high performance features and quality. It includes most features of the IC-736 plus improvements: a new 4.9 inch multifunction LCD display, a newly designed DSP system, twin pass band tuning (PBT) and a dual watch function for monitoring multiple frequencies.

- Receive coverage: 30 kHz-60 MHz. Transmits: amateur HF/6 meter bands.
- All mode: USB, LSB, CW, AM and FM.
- 101 memory channels– 99 regular and 2 scan edges.
- 100 watts continuous output maximum on all modes except AM (40 watts maximum). Low power adjustable to 5 watts.
- 4.9 inch multifunction LCD for operating frequency, mode and filter selection.
- Spectrum scope function on the display with passband selection.
- Display lists frequency, mode and memory name for the 10 memories displayed per page.
- Switch labels are shown on the display.
- Automatic antenna tuner for HF/6m .
- Selectable AGC and RF attenuator.
- Display shows the contents of the CW memory keyer .
- The new DSP design improves receive and transmit audio at the IF stage. Also provides noise reduction, automatic notch filter, PSN modulation/demodulation and selectable APF for super narrow operation.
- Twin PBT narrows the IF passband in two stages to reduce interfering signals.
- The dual watch function monitors two frequencies simultaneously.
- A high performance memory keyer has 4 memory channels, contest number auto count up, and auto repeat function.
- Morse code announcement of radio functions.



NEW!

IC-756PRO

$TBA

Suggested List Price

Coming Soon!!!

Newly designed HF + 6 meter (50 MHz) rig has 32 bit floating point DSP Digital IF filter with 51 selectable bandwidths, microphone equalizer, manual notch function, digital twin pass band tuning (PBT) and much more.

TFT 5 inch color LCD provides a wider viewing angle and increased display information including: dual frequencies; memory frequency and name; IF filter bandwidth; RTTY tuning indicator; real-time spectrum scope, and voice memory / CW memory keyer contents.

- RX: 0.5 ~ 29.995MHz, 50 ~ 54MHz.
- TX: HF and 50 MHz amateur bands.
- Output power: SSB / CW / RTTY / FM: 5 ~ 100 W variable, AM: 5 ~ 40 W variable
- Modes: USB, LSB, CW, RTTY, AM, FM.
- Number of memory channels: 101

- AGC loop operation.
- IF filter and notch circuits.
- Low distortion, RF-type speech compressor with selectable band width.
- Built-in RTTY demodulator.
- Noise reduction function with variable rejection level.
- 8 channel digital voice memory function: 4 for transmit and 4 for receive.
- Real-time spectrum scope with selectable sweep range: ±12.5 kHz, ±25kHz, ±50kHz, ±100kHz.
- Dual watch can receive 2 signals on the same frequency band simultaneously.
- Triple band stacking register.
- Built-in memory keyer and electronic keyer.
- Built-in automatic antenna tuner covers 50MHz.

The IC-756PRO has not been approved by the Federal Communications Commission. This device is not, and may not be offered for sale or lease or sold or leased until the approval of the FCC has been obtained.

Icom HF Specifications

Model	Receive Freq Range	Power Supply	Current Drain Xmit	Power Output AM	Power Output FM	Power Output SSB	Power Output CW	Power Output FSK	Mike Z	Receive Circuitry	Sensitivity 1.8-30 MHz	RIT / XIT Range	Notch Atten	Audio
IC-706MKII*	30kHz-200MHz	13.8 VDC	20A	40*	100*	100*	100*	100*	600 Ω	Triple Conversion	<.16µv at 10 dB	±1.2 kHz	option	>2.0W
IC-706MKIIG	30kHz-200MHz + 70cm	13.8 VDC	20A	40*	100*	100*	100*	100*	600 Ω	Triple Conversion	<.16µv at 10 dB	±1.2 kHz	auto DSP	>2.0W
IC-746	300 kHz - 60 MHz, 108 - 174 MHz	13.8 VDC	20A	40	100#	100#	100#	100		Quadruple Conversion		±9.9 kHz	auto	
IC-756	300 kHz - 60 MHz	13.8 VDC	20A	40	100†	100†	100†	100	600 Ω	Quadruple Conversion	<.15µv at 10 dB	±1.2 kHz	auto	>2.0 W
IC756PRO	300 kHz - 60 MHz	13.8 VDC	23A	40	100†	100†	100†	100	600 Ω	Triple Conversion	<.16µv at 10 dB			>2.0 W
IC-775/DSP	100 kHz - 29.99 MHz	120 VAC	135 VA	50	200	200	200	200	600 Ω	Quadruple Conversion	<.16µv at 10 dB	±9.9 kHz	auto	>2.6 W
IC-781	100kHz - 30MHz	120VAC	760 VA	75	150	150	150	150	600 Ω	Quadruple Conversion	<.16µv at 10 dB	±9.9 kHz	45 dB	>2.6 W

† Output is continuously adjustable from 5 to 100 W   * 20W SSB/CW/FM/RTTY and 4W AM for 2m. Continuously adjustable. # 50 watts on 2 meters, 20W 70cm G Model

HF / VHF TRANSCEIVERS

HF / VHF All-Mode

HRO
Discount Price
MKII $1099.95

IC-706MKII-15

$1356.00
Suggested List Price

PC Ready!

The compact, feather-weight IC-706MKII-15 HF / VHF all-mode transceiver is an update of the IC-706. Features include: improved VHF band RF stage, a tone squelch function (optional UT-86 required), 2 optional filters, and the built-in DSP plug in IC-UT106, (version 15).

The IC-706MKII covers the HF bands from 160 - 10 meters as well as the six and two meter bands. It includes all modes over its entire frequency range, including FSK for RTTY operation, and narrow FM on the HF bands. Receives 30 kHz to 2 meters with wide AM and wide FM broadcast reception.

It has a 100 watt output transmitter (40 watts AM) from 160 through 6 meters, with 20 watts output on 2 meters (4 watts AM). VOX is included, as well as a speech processor, I-Loop PLL circuit, and optional narrow SSB filter. Multiple CW functions include a built-in keyer, optional narrow receiver filter, full break-in (QSK), adjustable CW pitch and CW reverse functions.

101 memories store up to 9 alphanumeric characters each. A dot matrix display shows all of the popular menu features, frequency and multifunction meter data. A spectrum scope displays band activity at a glance.

The front panel detaches to aid mobile installation. The PS-85 optional switching power supply is great for making the IC-706 a base station. The AT-180 optional automatic antenna tuner provides a 3:1 match and covers 6 meters.

HF + 6m + 2m + 70cm

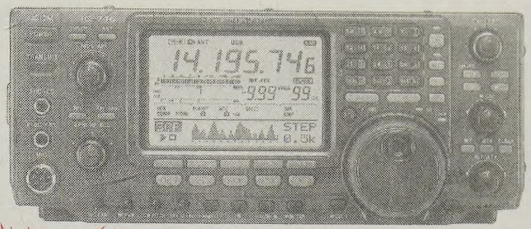
HRO
Discount Price
MKIIG $1399.95

IC-706MKIIG

$1680.00
Suggested List Prices

How do you improve on the IC-706MKII? The G Model adds these Features:

- Expanded frequency coverage: HF, 6m, 2m, 70cm.
- Backlit switches.
- Tone squelch standard.
- Higher power: 100W HF & 6m, 50W 2m, 20W 70cm.
- AF DSP standard
- Auto repeater function.



HRO
Discount Price
$1789.95

IC-746
HF + 6 m + 2 m

$2228.00
Suggested List Price

PC Ready!

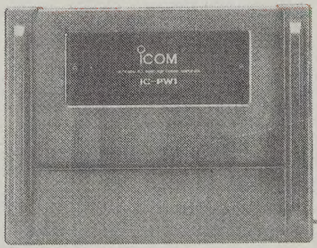
For the amateur who wants all the popular bands in one rig, the IC-746 has HF, 6 meters, and 2 meters. It offers all-mode operation (SSB, CW, RTTY, AM and FM) on all bands. It provides 100 watts output on all bands. The partially dot matrix LCD screen includes a spectrum display and shows the status of all major functions of the rig. It is the first in its price class to include twin Pass Band Tuning. It follows Icom's usual designs and uses most of the filters and other accessories designed for their HF radio line.

- A wide frequency coverage receiver with continuous coverage from 30 kHz to 60 MHz and 108-174 MHz.
- Large, multi-function LCD for ease of use in most any lighting condition. Multi-functions include band scope, memory names, key assignments, twin PBT settings, split frequency and memory keyer contents.
- Automatic antenna tuner covers HF and 6 meter bands. After operating on a band for the first time, preset memories can provide very high speed tuning.
- Versatile filter combinations allow up to 3 optional crystal filters.
- Aluminum die-cast chassis and large cooling fan for 100% duty operation.
- Complete CW functions include a built-in 4 channel memory keyer with 50 characters, CW electronic keyer, CW pitch control and full-break in.
- IF DSP function provides noise reduction, automatic notch filter, selectable APF.
- Digital, multi-function S/RF meter provides a variety of useful information on signal strength and RF output. SWR and ALC levels are simultaneously shown while transmitting.
- Other features include: tone squelch with 50 different tone frequencies; FM narrow capability; quick split function; triple band stacking register; memo-pad function; optional voice synthesizer; and IF transmit audio monitor.

HF + 6m Amplifier

IC-PW1

HRO
Discount Price
$4799.95



Solid State
Remote Control Head

The IC-PW1 linear amplifier provides a wide frequency coverage with up to 1kW output requiring only a maximum of 100 watts input. The duty cycle is 100 percent with full break-in operation. It covers amateur bands from 160 meters to 15 meters plus 6 meters and includes an automatic antenna tuner for all bands. Internal circuitry allows the ALC to be adjusted over a wide range allowing the PW1 to be used with almost any rig - not just Icom. Operates on 110 or 220 VAC 50 or 60 cycle.

HF ACCESSORIES

Icom Base Station Accessories

		781	775	765	756	746	738	736	728	707	706	706 MKII	820	821H	R9000	R72	R100	R7000	R8500	HRO Price
External AC Power Supply	PS-30						*		*	*	*	*	*	*						$499.95
	PS-85				*	*					*	*								$269.95
Internal AC	PS-35																			$299.95
External Speakers	SP-3	*		*			*	*	*	*			*	*	*	*	*	1	*	$109.95
	SP-7						*	*	*	*	*	*	*	*		*	*	*	*	$75.95
	SP-10										*	*								$55.95
	SP-12										*	*								$44.95
	SP-20	1	*	1			*	*	*	*			*	*	1	*	*	*	*	$239.95
	SP-21		*		*	*	*	*		*			*	*						$119.95
Automatic Antenna Tuner	AH-4					*						*								$309.95
	AT-180										*	*								$499.95
	AT-500	*	*	*			*	*	*	*										$1,199.95
HF Amplifier	IC-PW1	*	*	*	*	*	*	*	*	*	*	*								$4,999.95
Antenna Selectors	EX-20																			$129.95
	EX-627	*	*	*			*	*	*	*	*	*								$449.95
Antennas	AH-2B			*		*		*	*											$299.95
	AH-610																			$169.95
Weather Proof Preamps	AG-25												*	*						$199.95
	AG-35												*	*						$169.95
	AG-1200																			$169.95
Microphones	HM-36	*	*	*		*	std		*											$69.95
	HM-103										*	*								$74.95
	SM-6	*		*			*	*	*	*			*	*						$99.95
	SM-8	*	*	*		*	*	*	*	*	*	*	*	*						$159.95
	SM-20	*	*	*	*	*	*	*	*	*	*	*	*	*						$239.95
Mounting Brackets	MB-5								*	*			*	*		*			*	$59.95
	MB-12																	*		$59.95
	MB-18																			$59.95
	MB-19		*																	$74.95
	MB-23				*															$15.95
	MB-49						*	*												$59.95
	MB-62											*								$25.95
	MB-63											*								$18.95
Handles	MB-19	3		*											3					$74.95
	MB-23								*	*			*	*		*			*	$15.95
Remote Controllers	RC-11																			$109.95
	RC-12																	*		$119.95
TV Adapters	TV-R7000																	*		$299.95
	TV-R7100																		*	$299.95
	TV-970																			$499.95
	TV-1275																			$329.95
CI-V System	CT-16	*	*	*		*	*	*	*	*	*	*			*					$119.95
	CT-17	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		*	*	$129.95
	UX-14																			$99.95
High Stability Crystal Units	CR-64								*							*				$119.95
	CR-282		*	*		*	*	*												$149.95
	CR-293												*	*						$339.95
	CR-338									*										$81.95
	CR-502				*						*	*								$76.95
Keyer Unit	EX-243																			$99.95

1: Style and size are matched with the equipment. 2: An optional OPC-118 CABLE is required. 3: Included. 4: An optional UX-14 is required.
5: Option unnecessary. 6: An optional OPC-137 CABLE is required. 7: for HF band only.

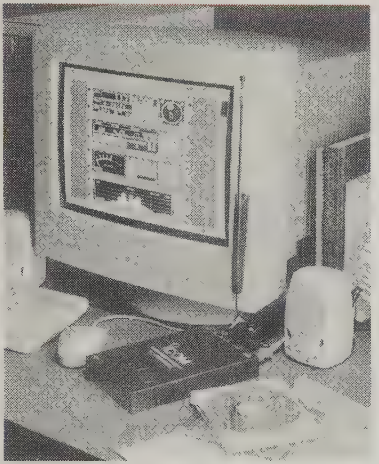
Icom HF Filters

Filter	Center Frequency	Bandwidth	Mode	781	775	765	756	746	738	737A	736	735	729	728	725	726	707	706	706 MKII	R71A	R72	R9000	HRO Price
FL52A	455 kHz	500 Hz	CW	std		std	*	*	*	*	*						*					*	$179.95
FL53A	455 kHz	250 Hz	CW	std	*	*		*	*	*	*						*						$179.95
FL32A	9.0106 MHz	500 Hz	CW	std		std						*								*			$99.95
FL63A	9.0106 MHz	250 Hz	CW									*											$99.95
FL96	455 kHz	2.8 kHz	SSB					*															$199.95
FL100	9.0106 MHz	500 Hz	CW				*	*	*	*	*		*	*	*	*		*	*	*	*		$99.95
FL101	9.0106 MHz	250 Hz	CW	std	*	*	*	*	*	*	*		*	*	*	*		*	*		*		$99.95
FL102	9.0100 MHz	6.0 kHz	AM	std	*	*																	$75.95
FL103	9.0115 MHz	2.8 kHz	SSB	*				*										*	*	std			$109.95
FL-222	455 kHz	1.9kHz	SSB		*		*	*															$199.95
FL-223	9.0115 MHz	1.9 kHz	SSB		*		*	*										*	*				$79.95
FL-232	9.0115 MHz	350 Hz	CW		*		*	*										*	*				$89.95

RECEIVERS

PC-Controlled All-Mode Receiver

HRO Discount Prices
$399.95 Blocked
$529.95 Unblocked



(Computer required. Shown here for illustation.)

IC-PCR-1000

$629.00
Suggested List Price

Listen to the world right from your PC: broadcast radio and television, ham stations, marine, aviation, and more. Control this receiver on any personal computer via three interface screens. Unblocked version available to government authorized agencies.

Wide band coverage from 10-1300 MHz (cell phone blocked). All modes: AM, FM, WFM, USB, LSB, CW. You have IF shift, noise blanker, six scan types, programmable tuning steps, RF attenuator, on-line help and unlimited memory channels. You may add 9600 baud data receive with a third party TNC. Also features a real-time bandscope function, DSP plug-in option.

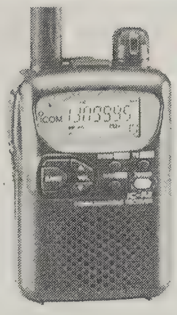
Package includes AC adapter, telescoping antenna with BNC connector, RS-232C cable, software for Windows 3.2 or 95, and an external speaker plug. Optional accessories include DC power cable, wide band base station antenna, and a choice of several external speakers.

IC-PCR-100

Same as the PCR1000 except there is no SSB capability, no UT-106 DSP, and no real time scope. **HRO Price $299.95**

IC-R2A

$199.95
HRO Price



This tiny handheld receiver/scanner is the same size as the Q7A. It receives 485kHz to 1.3 GHz (cellular locked out) in AM, FM, and WFM modes. It has tone squelch, auto squelch, 400 memories, and it is PC programmable.

IC-R10

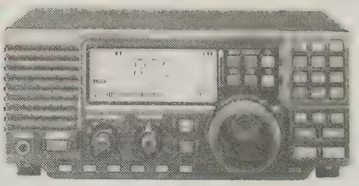
$641.00
Suggested List Price

HRO
Discount Price
$359.95 Blocked
$449.95 Unblocked

The R10 has a receive range from 0.5 MHz to 1300 MHz. (Depending on the country, selected frequency ranges may be restricted. The cellular band is blocked in the USA.) It has FM, WFM, AM, USB, LSB and CW modes.

- All mode receive including CW and SSB.
- 1000 memories. Store eight-character names in each channel.
- Multi function LCD.
- Automatically tuned front-end filters for good image & intermod rejection.
- Real-time bandscope makes it easy to find busy frequencies.
- The "busy catch scan" searches for the next busy frequency (FM only) while the receiver is detecting a signal.
- Voice Scan Control pauses only for modulated signals.
- Full computer access is available from your home PC with the optional CS-R10.

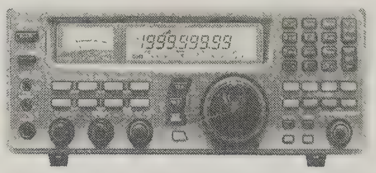
NEW!



IC-R75

$799.95
HRO Price

Icom's newest receiver covers the HF bands plus 6 meters (0.03 to 60 MHz). It features twin PBT, PC control with the optional RS-R75 software, synchronous AM detection, optional DSP capability (UT-106) and a front mounted speaker. Modes include USB/LSB, CW, RTTY, AM/S-AM and FM. A complete line of filters are available. Operates at 13.8 VDC ± 15% at 2.0 A. Features 101 memory channels (99 regular and 2 scan edges. Program scan, memory scan and priority scan. Direct frequency input with numeric keypad. Two-level pre-amp, noise blanker and selectable AGC.



IC-R8500

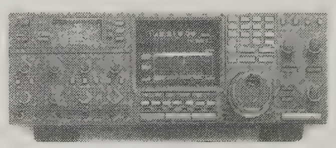
$1499.95
Blocked Version
HRO Price

Serious listeners will appreciate this super wide band receiver that offers the high performance of the IC-R9000 at a much lower price. Receive from 0.1 to 2000 MHz in all modes (cellular band blocked). Be sure that if there are any communications out there, you'll be able to hear then with a minimum of interference.

- All modes (USB, LSB, CW, AM, FM WFM) plus CW narrow (optional FL-52A required), AM & FM narrow.
- Noise blanker, RF attenuator. selectable AGC.
- 1000 memory channels store frequency, mode and tuning step. Channels in 20 banks of 40 channels plus auto memory write of 100 channels and skip area of 100 channels. Alphanumeric names (8 characters) may be assigned.
- Built-in AF shift & APF.
- High receive sensitivity and built-in TCXO for high stability.
- View TV signals with optional TV-R7100. Connection to CRT monitor required (not included).
- RS-232 interface, versatile scanning functions, various tuning steps, 3 antenna connectors, S-meter squelch, voice synthesizer (optional UT-102 required), sleep timer, REC and REC remote terminals for tape recorder control.

IC-R9000

$6579.00
Suggested List Price
Call for Quotes

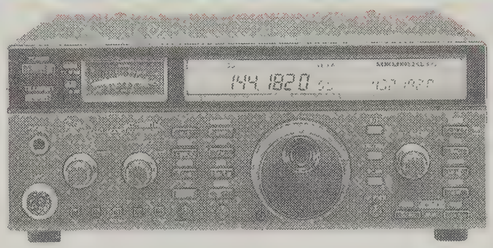


Notice: Federal and State Government Agencies and Communications Customers Only

This receiver has Icom's unique multifunctional CRT with spectrum scope to display information on the status of the radio as well as incoming signals.The CRT shows memory contents, dual clocks, weekly and daily timers. and frequency information of the dual VFO's. The display doubles as a spectrum scope showing a maximum of ±100 kHz. Dynamic range is 60 dB and sensitivity is approximately .63µV.

The IC-R9000 receives 100 kHz to 1999.8 MHz in LSB, USB, CW, AM, FM, WFM (wide-FM), FSK. Eleven bandpass filters use GaAs Fets for VHF and UHF. 1000 memories stores mode, frequency, and tuning increments. Multiple scanning functions: program, memory, selected memory, selected memory mode, priority, and voice. Direct keyboard entry; notch filter and IF shift.

2m / 440 MHz Base Station



Satellite Rig

IC-821H – $1389.95

HRO Price

This 2m / 440 MHz FM base station transceiver is the perfect rig for satellite work. Satellite communications are enhanced with satellite memory and tracking functions. It is also ready for packet operation. The compact IC-821H is competitively priced without sacrificing features.

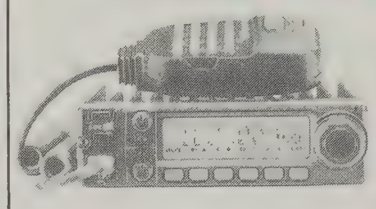
- 45 watts on 2 m and up to 40 watts on 440 MHz.
- All-mode operation
- 160 memories.
- DDS has 1 Hz resolution.
- Compact size for easy installation.
- High-stability crystal.
- Optional tone scan.
- 2 VFO's for both VHF and UHF bands.
- IF shift to reduce interference.
- RIT function.
- Noise blanker and IF shift for sub band.
- Continuous adjustment transmit power.
- Full-duplex.
- Stereo headphone jacks and two external speaker jacks.
- 50 memory channels can be user allocated to main or sub-bands.
- Built-in electronic keyer.
- 2 antenna connectors for VHF and UHF.
- Attenuator prevents distortion.
- Individual mode selection on each band.
- Re-writeable call channels for each band.
- Optional CW filters for main and sub bands.
- Separate main and sub S-meters.
- Microphone included.
- Packet operation up to 9600 bps. DATA terminal directly connects to its modulator circuit which prevents exceeding maximum deviation even with large amounts of data.
- Satellite communication functions include reverse and normal tracking on main and sub-band VFOs, and Doppler compensation. 10 satellite frequency memories.

2m Mobile

IC-2100H

$199.95

HRO Discount Price



Select a green or amber display for easy viewing of the IC-2100H in any light. IMD provides protection from excessively strong signals. A squelch attenuator reduces interference from strong nearby signals. Selectable power from 55 W down to 5 or 10 W. Tone squelch standard with pocket beep and tone scan functions. 113 memory channels. PC ready and 14 channels for 16 digit DTMF codes. Full remote control from the mic. CTCSS encode/decode standard.

Cloning Software

Icom cloning software allows you to preprogram memory channels with operating frequencies, set tones, set power levels, set squelch levels, set up auto-dial DTMF frequencies, and exchange operating frequencies. **Call for price quotes.**

Software is available for these radios:

- CS2710 for 2710H (use with OPC-646)
- CSR10 for RC10 (use with OPC-478)
- CSR2 for R2 receiver.
- CSWHH-4 for Windows (IC-T2A, T7A, W32A, T8)
- Remote software for IC-746 is RS-746; for IC-R75 is RS-R75.

HRO on the Web:
http://www.hamradio.com

2m / 70cm Mobiles

NEW!

IC-2800H

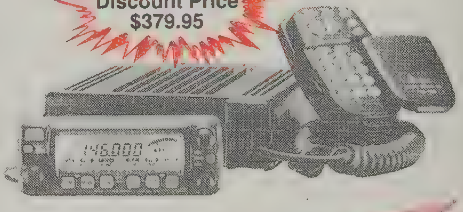
$539.95

HRO Discount Price

The IC-2800H 2m / 440 MHz dual bander is designed for the ham with demanding 2m/70cm mobile requirements. It has a number of great features that make VHF / UHF mobile operaton more fun.

- 3 inch multi-function color LCD display.
- NTSC video port input for monitoring broadcast TV with a TV tuner or displaying a GPS map.
- Band scope.
- Independent tuning and control knobs.
- Remote control head with 11.5 foot cable supplied.
- CTCSS encode/decode.
- 9600 bps packet terminal ready.
- Receive frequency range is 118-174 MHz and 440-450 MHz.
- 232 memories.
- PC Programmable.
- Die-cast aluminum chassis.
- Full control mike.

HRO Discount Price $379.95



IC-207H – $480.00

Suggested List Price

This versatile 2m / 440 MHz dual band will fit easily into your car and it comes 9600 BPS packet ready. The wideband receiver covers 118-174 MHz including airband and 440-540 MHz. Output is 50W VHF and 35W UHF. Other features include CTCSS encoder/decoder standard, built-in duplexer, 162 memory channels, HM-98 mike and detachable front panel.

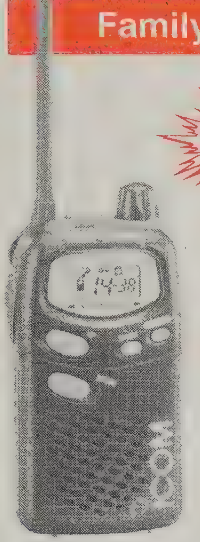
Icom VHF Specifications

Model	Freq Range	Mode	Power Supply	Current Drain Xmit	Curernt Drain Rec	Power Out Watts	Ant Z	Mike Z	Sens	Audio Pwr	Built-in AC Supply
IC-207H	2m / 440 MHz†	FM	13.8 VDC	12 A	1.0 A	50 / 35	50 Ω	600 Ω	<.18 µV	2 W	no
IC-821H	2m / 440 MHz	All	13.8 VDC	11 A	2.0 A	45 / 35	50 Ω	600 Ω	<.11 µV	2 W	no
IC-2100H	2m	FM	13.8 VDC	12A	1.0 A	55	50 Ω	600 Ω	<.18 µV	2.4 W	no
IC-2800H	2m / 440 MHz	FM	13.8 VDC	12A	1.8 A	50 / 35	50 Ω	600 Ω	<.18 µV	2.4 W	no

† Extended receiver coverage 118-174 MHz (airband included), 440-450 MHz

ACCESSORIES

Family Radio



HRO
Discount Price
$89.95

IC-4008A

$160.00
Suggested List Price

Choose black or yellow

The easy to operate IC-4008 has water-resistant construction and features a 'Call Ring' function to send a ring tone to another radio. Up to 10 ring patterns may be selected. An automatic transponder function automatically checks on another station's availability. Uses 3 AA alkaline cells.

HRO 24-Hour Fax Lines

Anaheim	714-533-9485
Atlanta	770-263-9548
Denver	303-745-7394
Oakland	510-534-0729
Phoenix	602-395-1244
New Castle	302-322-8808
Portland	503-684-0469
Salem	603-898-1041
San Diego	858-560-1705
Sunnyvale	408-736-9499
Burbank	818-842-5283
Woodbridge	703-494-3679

Handheld Batteries/ Chargers

Model	Volts	Rating mAh	Wall Charger	Desk Charger	HRO Battery Prices
BP3	8.4	270	BC-25u	BC-35	$65.95
BP-7	13.2	450	BC-16u	BC-35	$99.95
BP-8	8.4	800	BC-16u	BC-35	$99.95
BP-82	7.2	300	BC-110A	BC-72	$83.95
BP-83	7.2	600	BC-110A	BC-72	$90.95
BP-84	7.2	1000	BC-110A	BC-72	$99.95
BP-85	12	340	BC-110A	BC-72	$119.95
BP-102	7.2	1200		BC-119*	$119.95
BP-103	12	600		BC-119*	$129.95
BP-111	7.2	400	BC-110A	BC-80	$68.95
BP-112	7.2	700	BC-110A	BC-80	$79.95
BP-114	12	400	BC-110A	BC-80	$139.95
BP-121	7.2	400	BC-77A	BC-119*	$99.95
BP-123	7.2	1200	BC-77A	BC-119*	$89.95
BP-124	12	400	BC-77A	BC-119*	$129.95
BP-131	7.2	900		BC-119*	$119.95
BP-132	12	600		BC-119*	$139.95
BP-132A	12	600	BC-77A	BC-119*	$139.95
BP-157	7.2	900	BC-77A	BC-119*	$59.95
BP-160	7.2	700	BC-77A	BC-119*	$66.95
BP-171	4.8	700	BC-74A	BC-119*	$29.95
BP-172	4.8	650	BC-74A	BC-119*	$69.95
BP-173	9.6	600	BC-74A	BC-119*	$99.95
BP-180	7.2	600		BC-119*	$83.95
BP-194	**				$18.95
BP-195	9.6	700	BC-110A	BC-119*	$42.95
BP-196	9.6	1050	BC-110A	BC-119*	$53.95
BP-197	**				$24.95
BP-198	4.8	700	BC-110A	BC-119*	$59.95
BP-199	6	700	BC-110A	BC-119*	$70.95
BP-200	9.6	680	BC-110A	BC-119*	$85.95

*Adapters are required. See Adapter Table.
** "AA" Alkaline Pack

BC-119 Adapters

Adapter	For Batteries	HRO Price
AD-22	BP-101, BP-102, BP-103	$46.95
AD-25	BP-131A, BP-132A, BP-157A	$63.95
AD-26	BP-121, BP-122, BP-123, BP-124	$18.95
AD-27	BP-100, BP-130	$14.95
AD-28	BP-131, BP-132	$18.95
AD-51	BP-171, BP-172, BP-173	$14.95
AD-56	BP-171, BP-172, BP-173, BP-180	$18.95
AD-81	BP-195, BP-196	$17.95
AD-87	BP-198, BP-199, BP-200	$8.95

HF Antenna Tuners

Automatic HF Antenna Tuner AH-4

Tune up from HF through 50 MHz band. The AH-4 auto-tuner covers all amateur bands from 80 through 6 meters when used with a minimum 23' long wire antenna. Wih the optional AH-2b antenna element, tune 40 through 6 meters for mobile operation. It has automatic band changes and tunes usually in less than 2.5 seconds. The 45 memories store SWR minimum and tuning combinations. With those Icom radios with the TUNER feature, the AH-4 is remotely controlled from the radio front panel. Requires only 300 mW to tune and handles up to 120 watts. **HRO Price $309.95**

Icom HF Tuners

Features	AT-180	AH-4
Input Power (Watts)		
Max	120	120
Min	8	10
Auto Tune Time (seconds)		
New Band	2 - 4	2 - 3
Same Band	≤3	1
Tuning Accuracy	VSWR<1.5	VSWR<2:1
Auto Band Switching	yes	yes
Preset Matching	CPU Controlled	CPU Controlled
Power Supply	13.8 VDC	13.8 VDC
Frequency Coverage	1.8-28 MHz	3.5-54 MHz
Radios	IC-706	Most
HRO Price	$499.95	$309.95

Icom Handhelds

Model	Frequency	Power Supply	Power Out Transmit*	Current Transmit	Drain Receive	Sensitivity	Height in(cm)	Width in(cm)	Depth in(cm)	Weight oz (g)	HRO Price
IC-2GXAT-HP	144-148 MHz†	13.5VDC	7.0/3.0 W	1.8 A	250 mA	<.18µV/12 dB	4.9(12.2)	2.2(5.7)	1.1(2.9)	13(365)	$229.95
IC-Q7A	2m/440††	3.0 VDC	350/300 mW	440 mA	170mA	<.16µV/12 dB	3.4(8.6)	2.3(5.8)	1.1(2.7)	6 (170)	$179.95
IC-T2H	140-150MHz†	9.6VDC	6.0/1.0W	1.5 A	75mA	<.18µV/12 dB	5.5((14)	2.4(5.8)	1.4(3.2)	14.8(420)	$169.95
IC-T7H	2m/440	7.2 VDC	6.0/1.0 W	1.2 A	600 mA	<.16µV/12 dB	4.9(12.5)	2.2(5.7)	1.4(3.5)	11(320)	$269.95
IC-T8A-HP	6m/2m/440	4.5-16VDC	2.0/5W	1.4 A	200 mA	<.18µV/12 dB	4.2(10.6)	2.3(5.8)	1.1(2.7)	9.9(280)	$349.95
IC-T81A	6m/2m/440/1.2GHz	4.5-16VDC	5.0/.5 W	1.4 A	220 mA	<.18µV/12 dB	4.3(10.7)	2.3(5.8)	1.1(2.7)	10.2(290)	$399.95
IC-T22	2m	13.5 VDC	5.0/.5 W	1.4 A	150 mA	<.16µV/12 dB	4.8(12.2)	2.3(5.8)	1.1(2.7)	10.9(310)	$239.95
IC-W32A	2m/440 #	13.5VDC	5.0/.5 W	1.6 A	210 mA	<.18µV/12 dB	5.4 (13.7)	2.2(5.7)	1.3(33)	16 (450)	$299.95

* Power with standard battery pack
# Extended receive 118-174 MHz and 400-470MHz

† Frequency coverage 138-174(receive only outside amateur bands), 440-450 MHz
†† 1.0/0.1W 1.2GHz

ICOM

HANDHELDS

Quad-Band HT

NEW!

IC-T81A-HP

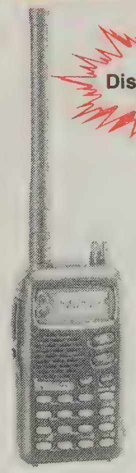
6m / 2m / 70 cm / 1.2 GHz

$399.95

HRO Price

The ultra-compact IC-T81A covers 6m, 2m, 70cm and 1.2 GHz. It has a multifunction 'joystick' allowing quick and easy band changes and other functions. Has wide FM and AM modes to monitor FM broadcast and air bands. Tone squelch is standard. RIT and VXO for 1.2 GHz. 124 memory channels, auto repeater function (USA version), PC programmable, 9 DTMF memories.

Tri-Band HT



HRO Discount Price $349.95

IC-T8A-HP

6m / 2m / 70 cm

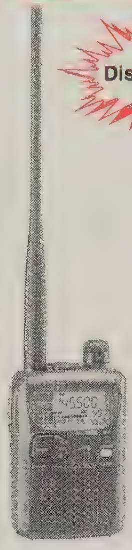
$419.00

Suggested List Price

This full-featured transceiver covers 6m, 2m and 70cm. It has 5 watt output with 13.5 VDC power supply. The rugged, water-resistant construction meets MIL-STD-810 requirements.

- PC programmable with optional cloning software and cable.
- DTMF encoder with 9 DTMF memories.
- Narrow / wide FM capability and AM receive.
- Tone squelch and pocket beep standard.

2m / 70 cm Dual-Band



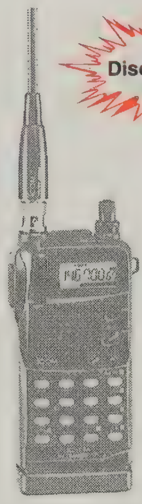
HRO Discount Price $179.95

IC-Q7A

$229.00

Suggested List

This mini-power twin-band HT has a wideband receiver 30 MHz to 1.3 GHz (cellular frequencies excluded). Receives FM, AM and WFM modes for air band, TV and FM broadcast stations. Output on transmit is 350 mW for VHF and 300 mW for UHF. Tone squelch standard. RIT capability. Two hundred memories. LCD backlighting with timer. Uses 2 standard AA or NiCd batteries.



HRO Discount Price $269.95

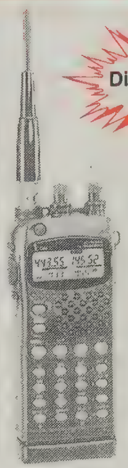
IC-T7H

$303.00

Suggested List

The IC-T7A fits comfortably in the palm of your hand. Carry it in your pocket or a small bag.

- Single VHF / UHF power module.
- One touch operation .
- 6W out 13.8VDC.
- Encode/decode included.
- PC programmable.
- Easy scanning display.
- High speed scan and scan timer.
- Auto band selection, memory allocation
- 70 memories, 9 DTMF auto dialing memories.
- Wide band receive.
- Microphone remote control.
- Indicator shows approximate battery voltage remaining.
- Compatible with T22A, W31A and Z1A accessories.



HRO Discount Price $299.95

IC-W32A

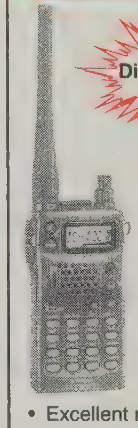
$365.00

Suggested List

This upgrade to the IC-W31A has the same features plus much more:

- 5 watts out with BP-173.
- 200 programmable memories .
- Analog volume controls and adjustable squelch.
- PC programmable.
- Wire cloning from another W32A.
- Advanced VV/UU/VU performance.
- Allows transmitting on VHF with simultaneous receiving on UHF. Same for UHF Tx and VHF Rx.
- More CTCSS frequencies: set Rx and Tx tone separately from 50 built-in frequencies.
- Weather channels.
- Backlit keypad.
- 8 character alphanumeric display.
- Extended VHF / UHF receive .
- Crossband repeat.

2 Meters



HRO Discount Price $239.95

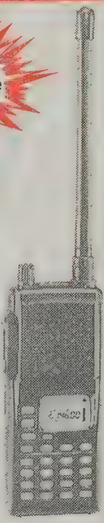
IC-T22

Now with BP-180 Battery

This convenient 2m handheld gives you high quality at a low price.

- 40 memories.
- Slim, easy-to-use.
- Excellent receive audio.
- Wide-band reception.
- "Log-in" feature memorizes transmitted frequencies.
- Runs directly from 12V for 5 W output.
- Battery pack compatible with the IC-Z1A & IC-W31A.

2 Meters

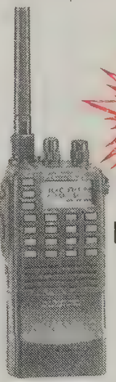


HRO Discount Price $169.95

IC-T2H

This simple to operate 2m handheld has cloning capability, customizable keys and a guide function, all housed in a solid body. Tone squelch and DTMF are standard.

- LCD backlight.
- Transmits 140-150 MHz; receives 136-174 MHz.
- 6 watts output standard.
- Encode/decode tone squelch operation standard. Includes pocket beep and tone scan.
- 8 front panel keys are custom programmable by the user. Assign functions by cloning or manual keypad operation.
- 40 memory channels.
- 5 DTMF memory channels



World's only 7-Watt HT HRO Price $229.95

IC-2GXAT-HP

You will enjoy the simple operation of this high power HT.

- Output 7 W with BP-132A battery or 13.5 VDC.
- Forty repeater memories; 1 call channel.
- Programmed or memory scan with skip function.
- Tone scan function.
- Squelch monitor.
- Automatic power saver.
- Lighted display with timer.
- DTMF redial and five auto dial memories.
- Auto repeater function.
- Channel number indication.
- Subaudible tone encoder, tone squelch and pocket beep. Optional pager and code squelch (UT-49 required)

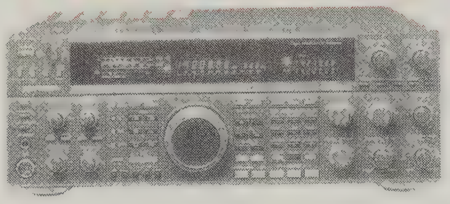
HANDHELD ACCESSORIES

OPTIONS		2 METERS											DUAL and TRI BAND										440 MHZ						1200 MHZ	220 MHZ			HRO Price
		2SAT	2GAT	2GXAT	2SRA	T21AT	T2A T2H	T22	2iA	02AT	P2AT	2AT	24AT	D1A	V21AT	W2A	W21AT	W31A W32A T7A/H	T8A T81A	X21AT	X2A	Z1A	4SAT	4GAT	4SRA	4iA	04AT	P4AT	12GAT	3SAT	03AT	P3AT	
Battery Packs	BP-3		*							*		std												*			std		*		std		$65.95
	BP-7		*							std														*			*		*		*		$99.95
	BP-8		*							*		*												*			*		*		*		$99.95
	BP-82	*			*								std			*					*		*		*					*			$83.95
	BP-83	*			*								*			*					*		*		*					*			$90.95
	BP-84	*			std								*			std					std		*		std					*			$99.95
	BP-85	*			*								*			i					*		*		*					*			$119.95
	BP-102													*																			$119.95
	BP-103													*																			$129.95
	BP-111										std																	std				std	$68.95
	BP-112										*																	*				*	$79.95
	BP-114										*																	*				*	$139.95
	BP-121								std																	std							$99.95
	BP-123								*																	*							$89.95
	BP-124								*																	*							$129.95
	BP-131																			*													$119.95
	BP-131A														*																		$99.95
	BP-132																			*													$139.95
	BP-132A			*											*																		$139.95
	BP-157A														*																		$85.95
	BP-160			*																													$66.95
	BP-171							*										*				*											$29.95
	BP-172						*	*										*				*											$69.95
	BP-173						*	*										*				*											$99.95
	BP-180						*	*										*				*											$83.95
	BP-195																																$42.95
	BP-196																																$53.95
	BP-198																		*														$59.95
	BP-199																		*														$70.95
	BP-200																		*														$85.95
Battery Cases	BP-4		*							*		*												*			*		*		*		$35.95
	BP-90	*			*								*			*					*		*		*					*			$35.95
	BP-130													*						*													$24.95
	BP-130A			*											*																		$35.95
	BP-170							*										*				*											$35.95
	BP-194						*																										$18.95
	BP-197																		*														$24.95
	CM-12		*							*														*			*		*		*		$49.95
Cables	CP-1		1							1		2												1			1		1		1		$26.95
	CP-11		3							*		2												3			*		3		*		$40.95
	CP-12	*					*				*		*					*				*	*					*		*		*	$36.95
	CP-12L																		*														$36.95
	CP-13			*	*									*	*	*	*			*					*								$36.95
	CP-13L				*				*							*					*				*	*							$40.95
	OPC-254	*					*				*		*					*				*	*					*		*		*	$14.95
	OPC-288			*	*				*						*	*				*	*				*	*							$19.95
DC -Cony	DC-1											*																					$40.95
Speaker Mikes	HM-46	*		*			*			*	*	*	*		*		*	*	*	*		*	*				*	*		*	*	*	$59.95
	HM-46L		*						*															*		*			*				$59.95
	HM-54	*		*			*			*	*	*	*		*		*	*	*	*		*	*				*	*		*	*	*	$79.95
	HM-55			*											*					*													$143.95
	HM-65				*									*		*	*				*				*								$61.95
	HM-70				*									*		*	*				*				*								$66.95
	HM-75						*								*		*	*	*	*		*											$79.95
Headset	HS-51	*	*	*			*		*	*	*		4		*		*		*	*			*	*		*	*	*	*	*	*	*	$79.95
	HS-85																	*				*											$84.95
Mounting Brackets	MB-24		*																					*					*				$41.95
	MB-25		*																					*					*				$41.95
	MB-30	*		*	*						*		*	*	*	*	*	*		*	*	*	*		*			*		*		*	$41.95
Internal Options	UT-40		*																					*									$79.95
	UT-49	*		*																			*							*			$59.95
	UT-50	std											*										*							*			$59.95
	UT-70													std																			$179.95
	UT-71													*																			$109.95
	UT-72								std																	std							$109.95
	UT-86			*																													$59.95
	UT-93																					*											$59.99
	UT-94																	*															$44.95
Other Options	AD-20				*											*					*				*								$63.95
	BA-12	*																					*							*			$29 95

1 For charging BP-3, BP-5A, BP-7, BP-8, BP-70 2 Optional DC-1 is required 3 Optional AD-12 is required 4 Except for full duplex operation

KENWOOD

HF TRANSCEIVERS



HRO
Discount Price
$3899.95

TS-950SDX – $5299.00

Suggested List Price

Kenwood's top-of-the line HF transceiver has Digital Signal Processing (DSP), high power MOSFET-type finals, simultaneous dual-receive and much more.

- 100 kHz – 30 MHz general coverage, quadruple conversion receiver.
- 100 memories.
- 160–10 meter ham bands.
- High power with MRF150MP finals.
- Built-ins: automatic antenna tuner, dual digital VFO's, illuminated keyboard, memory channel / VFO control, and RIT / XIT.
- Fine tune in 1 Hz steps.
- Built-in AF digital filter, multi-drive bandpass filter.
- Multiple scan functions.
- Built-in dual noise blankers, IF filters, selectable IF filter in memory, 4-position RF attenuator, and auto-AGC.
- Full and semi break-in electronic memory keyer, variable pitch control.
- RM-1 remote keyboard.
- Front panel control of DSP.
- Optional DRU-2 voice memory device available for SSB contest use.
- 500Hz CW filter in sub-receiver.

HRO
Discount Price
$2299.95

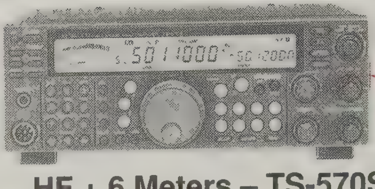
TS-870S – $3199.95

Suggested List Price

It's Revoluntionary

DSP at the IF stage is now a reality. Kenwood's TS-870S brings signals out of the noise with state-of-the-art DSP chips. Computer operation and control is possible with MS windows software included and a built-in RS-232C port.

- 100 kHz-30 MHz general coverage receiver with dual VFO.
- 100 watts output, 25 on AM.
- Multiple scanning functions.
- Multi-function digital filtering.
- Dual-mode noise reduction. Variable AGC. Beat canceler and automatic notch filter.
- Selectable voice equalizer. Speech processor. Voice synthesizer option (VS-2).
- Selectable transmit equalizer.
- VOX and QSK.
- Full function CMOS Super Keyer II.
- Built-in automatic antenna tuner.
- Two selectable antenna terminals with SO-239 connectors. External receiver antenna output jack.
- RCP software included. RCP-2 from Kenwood .
- Easy menu system for quick setting of functions.
- Built-in tone encoder.
- High-quality 60-second digital recording unit option (DRU-3A).



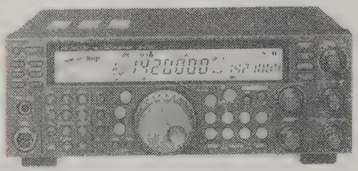
HRO
Discount Price
$1389.95

HF + 6 Meters – TS-570S(G) – $2069.95

Suggested List Price

The TS-570S(G) has all the features of the TS-570D(G) with the addition of 6 meters. Operation on 6M includes the spectacular DSP system built-in, 100 watts output and Preset Auto Antenna Tuner.

HRO
Discount Price
$1099.95



TS-570D(G) – $1749.00

Suggested List Price

The TS-570 HF rig is perfect for base or mobile operation.

- 500 kHz to 60 MHz general coverage receiver.
- Transmit on amateur bands from 160 to 10 meters.
- Variable transmit output 5 to 100 watts in 5 watt increments.
- 16-bit DSP AF signal processing.
- Large LCD display.
- Alphanumeric sub-display provides menu, mode guidance, split frequency, digital filter selection.
- Full scanning capabilities: variable scan speed. Scan across channels, groups of 10, all except locked out channels, or a frequency range between two channels.
- Enhancement includes noise reduction for CW and SSB, audio equalization, slope tuning and automatic IF filter bandwidth.
- New "soft touch" keys.
- Two antenna ports plus a packet port.
- Automatic antenna tuner.
- 100 memory channels.
- 10 key direct entry.
- 57600 bps PC control.
- Full/semi break-in CW.
- Built-in electronic keyer with 0 to 100 WPM and dual key inputs (for paddle and straight key) and manual weight.
- CW message memory / reverse mode.
- Eleven CW DSP filters.
- CW auto tune mode links with RIT without changing transmit frequency.
- CW auto tune enables automatic zero-beating for CW operation.
- TX sound quality monitor with 9 steps.
- NR1(SSB) is operator controlled in 9-steps or automatically tracks signal.
- NR1 and NR2 settings reconfigured automatically when modes change.
- "One-touch" DSP filter wide mode.
- RCP-2 remote control software.
- RS-232 com port.
- Opt. voice synthesizer VS-3.
- Optional filters: YK-88C-1 (500 Hz) and YK-88CN-1 (270 Hz) for CW. YK-88SN-1 (1.8 kHz) for SSB.

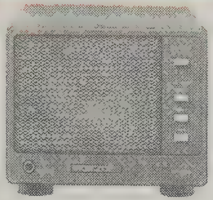
Kenwood HF Specifications

		Power Supply		Current Drain		Power											
Model	Receiver Frequency Ran	50/60 Hz AC	DC	Xmit	Rec	AM	FM	SSB	CW	FSK	FSK Shift	Mike Z	Receive Circuitry	Sensitivity	RIT / XIT	Notch Filter	Audio
TS-950SDX	100 kHz - 30 MHz	120/220/ 240 V		700 W max	80 W	40	150	150	150	150	170 Hz	500 Ω- 50 kΩ	Quadruple Conversion	<.2µV SSB,CW,FSK	±9.99 kHz	> 40 dB	1.5 W
TS-870S	101 kHz - 30 MHz		13.8 V	20.5 A	2.0 A	25	100	100	100	100	(1)	500 Ω- 50 kΩ	Quadruple Conversion	<.1µV SSB,CW,FSK	±9.99 kHz	> 45 dB	1.5 W
TS-570D(G)	500 kHz - 30 MHz		13.8 V	20.5 A	2.0 A	25	100	100	100	100	(1)	500 Ω- 50 kΩ	Double Conversion	<.4µV SSB,CW,FSK	±9.99 kHz	–	1.5 W
TS-570S(G)	500 kHz-30 MHz, 6M		13.8 V	20.5 A	2.0 A	25	100	100	100	100	(1)	500 Ω- 50 kΩ	Double Conversion	<.4µV SSB,CW,FSK	±9.99 kHz	–	1.5 W
TS-50S	500 kHz - 30 MHz		13.8 V	20.5 A	1.5 A	25	100	100	100	N/A	170 Hz	600 Ω	@	< .25 µV	>±1.1 kHz	–	2 W
TS-60S	50 - 54 MHz		13.8 V	20.5 A	2.0 A	25	90	90	90	N/A	170 Hz	600 Ω	@	< .25 µV	>±1.1 kHz	–	2 W

* Input Power   ** 6m <.16µV at 10 dB   †20W Out at 6m   # 50 W Out at 6m @ Double Conversion SSB, CW, AM; Triple FM   (1) 170, 200, 425, 850 Hz

HF ACCESSORIES

Speakers



SP-950

The **SP-950** base station speaker has cabinet styling to match the TS-950S and TS-950SDX. **HRO Price $139.95**

SP-31

To match the TS-850, TS-870S and TS-570S styling, order the **SP-31. HRO Price $99.95**

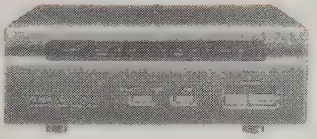
SP-23

To match the TS-450S / 690S, TS-870S and TS-570S styling, order the **SP-23. HRO Price $76.95**

SP-50B

For mobile speaker applications, Kenwood provides the **SP-50B ($55.95).** The SP-50B is a thin rectangular speaker.

Antenna Tuner



AT-50

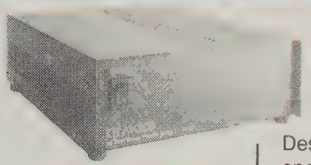
A fully automatic antenna tuner to use with the TS-50 and other 100 watt HF transceivers. Mobile or fixed operation. Can be installed remotely. **HRO Price $339.95**

Portable Emergency Kit

AREC-Kit

Kenwood's new concept in disaster communications is the **AREC-Kit** designed for instant set up and use in the most extreme field conditions. Includes 6 TH-G71A HT's, a TM-V7A and 2 UBZ-LF14YK FreeTalk™ HT's plus many accessories needed in field conditions. Contact your nearest HRO for more details.
Suggested List Price: $7800.00

Power Supplies



HRO
Discount Price
$199.95

PS-40

The PS-40 switching power supply is is rated at 23 amps and similar in size to the TS-50. The supply is for 110-230 VAC. Weighs only 4.5 pounds. **Suggested List Price $229.95**

PS-52

Designed for the TS-850 operating all modes for the rated periods of time. Provides 13.8 VDC at 22.5 A. Has a cooling fan and protection circuits.
HRO Price 279.95

PS-53

Designed for the TS-570 D/S(G) operating all modes for the rated periods of time. Provides 13.8 VDC at 20.5 A. Has a cooling fan and protection circuits.
HRO Price $269.95

Power Cables

Kenwood Power Cables

Part Number	Radio	HRO Price
PG-2Z	TS-140, 690, 790, 450, 850, 130, 440, 570	$37.95
PG-2N	TM-2530/ 50/ 70, 721, 621A, 221/ 321/ 421, 241, 231/ 431/ 531, 251/ 451/ 551, 255/ 455, 261/ 461, 441, 201B, 401B, 541, 631, 642A, 731, 741, 941, 732A, 733A, 642A, 742A, 942A, TR-751A	$17.95
PG-2W	TH-26, 46, 28, 48, 79, 235A	$17.95
PG-2Y	TS-50S/60S	$39.95
PG-3J	TH-22AT, 26, 27, 46, 47, 79A, 235A	$37.95

HF Accessories

Option	Model	950 SDX	940 S	930 S	850 S	870 S	570D 570S	450S 690S	440 S	430 S	140S 680S	50S	60S	HRO Discount Price
Microphone Hand	MC-43S	std	std	std	std		*	std	std	std	std	*	*	$59.95
Hand	MC-47						*					std	std	$59.95
Desk	MC-60A	*	*	*	*		*	*	*	*	*	*	*	$139.95
Desk	MC-80	*	*	*	*		*	*	*	*	*	*	*	$109.95
Desk	MC-90	*					*							$249.95
Filters 250Hz CW	YG-455CN-1	*	*	*	*			*						$159.95
500Hz CW	YG-455C-1	std	*	*	*			*			*			$149.95
500Hz CW	YK-455C-1							*			*			$99.95
6kHz AM	YK-88A-1		*	*										$99.95
500Hz CW	YK-88C								*	*				$129.95
500Hz CW	YK-88C-1	std	*	*	*		*	*						$129.95
270Hz CW	YK-88CN								*	*				$129.95
270Hz CW	YK-88CN-1	*			*		*	*						$129.95
1.8kHz SSB	YK-88SN		*						*	*				$119.95
2.4kHz SSB	YK-88S-1							*						$129.95
1.8kHz SSB	YK-88SN-1	*			*		*	*						$129.95
2.4kHz SSB	YK-88S								*					$129.95
500Hz CW	YK-107C											*	*	$129.95
Hi Stability Oscillator	SO-2	std			*		*	*				*	*	$169.95
Headphones	HS-5	*	*	*	*	*	*	*	*	*	*			$79.95
	HS-6	*	*	*	*	*	*	*	*	*	*			$59.95
External Speaker	SP-41						*		*	*	*			$49.95
	SP-31				*									$99.95
	SP-50B						*		*	*	*	*	*	$55.95
	SP-23						*	*						$76.95
	SP-950	*												$139.95
Voice Synthesizer	VS-2	*			*			*						$69.95
	VS-3						*							$39.95
Antenna Tuner	AT-50											*		$339.95
	AT-850				*									$249.95
Mobile Mount	MB-13											*	*	$55.95
	MB-430						*	*	*	*	*			$49.95
Power Supply	PS-40											*	*	$199.95
	PS-52				*									$279.95
	PS-53						*	*				*	*	$229.95
Voice Memory	DRU-2	*			*									$134.95
	DRU-3					*								$125.95
	DRU-3A						*							$129.95

KENWOOD

HF Mobile

HRO
Discount Price
TS50S $799.95

TS-50S

$1149.00
Suggested
List

This HF mobile has all-mode operation (AM, CW, SSB and FM) with 100W on CW / SSB / FM and 25 watts on AM. It has 2 VFO's and 100 memories. Compact size and weight make it a great mobile rig.

- Speech processor.
- 500 kHz–30 MHz general coverage receiver.
- DDS with "Fuzzy" control logic.
- Weighs 6.4 pounds.
- Full / semi break-in.
- Convenient menu programming.
- All mode squelch.
- Automatic gain control (slow / fast).
- IF shift and TF set.
- Computer control (optional).

Kenwood VHF / UHF Specifications

Model	DC Power Supply	Current Drain Transmit	Current Drain Receive	Output Power	Sensitivity	HRO Price
TM-261A	13.8 V	11 A	0.6 A	50 W	<.16 µV	$189.95
TM-642AD*	13.8 V		1.2 A	50W/25†	<.16 µV	$739.95
TM-742AD	13.8 V	11.5 A	1.2 A	50W/35U	<.16 µV	$639.95
UT-50S*		11.5 A	1.2 A	50 W	<.16 µV	$339.95
UT-220S*		7 A	1.2 A	25 W	<.16 µV	$339.95
UT-1200*		6.5 A	1.2 A	10 W	<.16 µV	$399.95
TM-461A	13.8 V	10 A	0.9 A	35 W	<.16 µV	$449.95
TM-G707A	13.8 V	11.5 A	1.2 A	50W/35W	<.16 µV	$349.95
TM-V7A	13.8 V	11 A	0.6 A	50W/35W	<.16 µV	$469.95

† 220 MHz *These modules used by TM-641, TM-942, TM-741A also.

2 m / 440 MHz Dual Band

TM-D700A

NEW!

$TBA

- Output 50 W VHF; 35 W UHF.
- Receives 118-1300 MHz (cellular blocked).
- Full dual-band operation.
- Remote head installation only (kit included).
- Alphanumeric dot-matrix LCD amber display.
- Easy-to-use menu system.
- 200 memories.
- Backlite microphone with alpha-numeric input.
- Built-in 1200 / 9600 bps TNC.
- Advanced APRS"! features.
- Satellite packet ready.
- DX packetcluster.
- Tone frequency scan.
- Visual scan.
- Digital code squelch (DCS) with frequency ID scan.
- PC programmable with PG-4S.
- Wireless remote control.
- SkyCommand II control.
- SSTV control.
- Digipeater operation.
- GPS / VC-H1 / PC port.
- Optional voice synthesizer.

This device has not been approved by the Federal Communications Commission. This device is not and may not be offered for sale, lease or sold or leased until the approvals of the FCC have been obtained.

Handheld Battery Packs / Chargers

Battery	Voltage	Rating MAH	Desk Charger	Radio Series	HRO Price
KNB-5A	7.2	800	KSC-7/8	TH-25/26/45/ 46/55/75/77	$63.95
KNB-6A	7.2	1100	KSC-7/8	TH-25/26/45/ 46/55/75/77	$99.95
KNB-7A	12	800	KSC-7/8	TH-25/26/45/ 46/55/75/77	$89.95
PB-32	6	600	KSC-14	TH-22AT/ 42AT/79A	$66.95
PB-33	6	1200	KSC-14	TH-22AT/ 42AT/79A	$79.95
PB-34	9.6	600	KSC-14	TH-22AT/ 42AT/79A	$89.95

Kenwood VHF Accessories

Option	Model	211A 411A	221A 321A 421A 521A	231A 331A 431A 531A	241A 441A 541A	251A 451A 551A	255A 455A	261A 461A	711A 811A	751A 851A	2530A 2550A 2570A	4100 A	621A 721A	631A 731A	732 A	733 A	642A 742A	641A 741A	941 A	V7A	HRO Price
Microphone Hand	MC-43S	*	*	*					*	*	*	*	*	*							$59.95
Hand	MC-44DM		*	std	std									std							$79.95
Hand	. MC-45														*		*	*	*		$79.95
Hand	MC-45DM					std	std								std	std	std	std	std		$79.95
Hand	. MC-48B	*	*	*		*	*		*	*	*	*	*	*	*	*	*				$89.95
Hand	MC-52DM			*	*																$29.95
Hand	MC-53DM					*	*	std								*	std			std	$29.95
Desk	. MC-60A	*	*	*	*	*	*		*	*	*	*	*	*	*	*	*	*		*	$139.95
Desk	. MC-80	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		*	$109.95
Modular Mike Switch	MJ-89							*									*				$69.95
Modular Plug Adapt	MJ-88							*													$32.95
External Speaker	SP-41	*	*	*	*			*		*	*	*	*	*	*			*	*	*	$49.95
	SP-50B	*	*	*	*			*		*	*	*	*	*	*			*	*	*	$55.95
Voice Synthesizer	VS-2											*									$69.95
	VS-3																			*	$39.95
Noise Filter	PG-3B	*	*	*	*			*		*	*	*	*	*	*		*	*	*	*	$29.95
Tone	TU-7									*	*	*									$54.95
	TSU-5		*																		$59.95
	KQT-8			*	*								*	*							$49.95
	TSU-7														*		*	*	*		$59.95
	TSU-8						*	*							*		*	*	*		$59.95
DTMF Unit	DTU-2				*	*															$32.95
Memory Unit	ME-1					*															$39.95
Mobile Mount	MB-11											*	*	*			*	*	*		$19.95
	MB-14																*				$49.95
	MB-201		*	*	*			*							*					*	$25.95
	MB-430								*												$49.95
Power Cable	PG-2N	*	*	*	*	*	*		*	*	*	*	*	*	*	*	*	*	*	*	$17.95
Data Cable	PG-5A																			*	$15.95
Extension Cables	DFK-3C																*			*	$44.95
13'	. DFK-4C																*			*	$64.95
22'	. DFK-7C																*			*	$99.95

2 m / 70 cm Dual-Band Mobiles

HRO
Discount Price
$349.95

TM-G707A

$510.00
Suggested
List Price

The TM-G707A FM dual bander has been specifically designed for mobile operations. The extra large amber display has a four step dimmer for easy viewing in all lighting conditions.

- Simple operation. Programmable memory system stores five operating profiles with recall by pushing just one button.
- 180 memory channels with Memory Name Function which identifies each memory channel with up to 7 alphanumeric characters.
- Multiple scan functions include priority and CTCSS tone.
- Built-in duplexer.
- Memory shift for odd splits and auto repeater offset (2m).
- PC programmable w/PG-4S.
- Built-in CTCSS encoder/decoder.
- Packet ready for 1200/9600 BPS packet including front panel connector.
- MC-53DM multi-function backlit mike with DTMF.
- Optional quick release detachable front panel.

Great for APRS

HRO
Discount Price
$469.95

TM-V7A

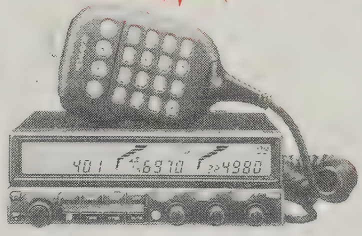
$739.95
Suggested
List Price

The TM-V7A is easy-to-operate with its cool-blue display modes.

- Simultaneous receive on VHF and UHF plus simultaneous receive of two frequencies on the same band, voice and data.
- 50 watts output on 2 meters (144–148 MHz), 35 watts output on 70 cm (438 – 450 MHz).
- Five-in-one programmable memory. Five different operating profiles,
- Multiple scan functions and tone scan.
- Voice synthesizer (with optional VS-3).
- Built-in duplexer.
- Visual scan with a pause.
- 280 memory channels (180 when using Memory Name Function which allows identifies each memory channel with up to 7 alphanumeric characters.).
- Built-in CTCSS encoder/decoder.
- Packet ready for 1200/9600 BPS packet. Includes front panel connector.
- Supplied MC-53DM multi-function backlit mike with DTMF.
- Programming software with optional PG-4S..
- Optional quick release detachable front panel (DFK-4C 13' and DFK-7C 22' cables).

Multi-Band Mobile

HRO
Discount Prices
TM642AD $739.95
TM742AD $639.95



TM-642AD

2m & 220 MHz Plus
$989.00

TM-742AD

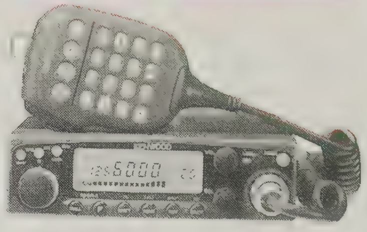
2m & 440 MHz Plus
$959.00
Suggested List Prices

Free Duplexer
Limited Time Offer
TM-742AD Only

These multi-band FM transceivers provide dual band (144 / 440 MHz or 144 / 220 MHz) operation and the capacity to expand to triple band by adding an optional module for 50 MHz, 220 MHz, or 1200 MHz.

- Extended 2 meter receive .
- TM-742AD covers 144 MHz and 440 MHz at 50 W on 2m, 35 W on 440 MHz.
- TM-642AD covers 144 MHz and 220 MHz at 50 W/25W.
- Multiple scan modes.
- Built-in DTSS with pager and CTCSS encode.
- Backlit microphone.
- Independent receive with display for each band. Choose single, dual or triple band operation. Triple band cross-band operation is available.
- 100 memory channels plus a call channel for each band.
- Direct frequency input to the VFO from DTMF microphone.
- Remote front panel mount kits optional.

Single-Band



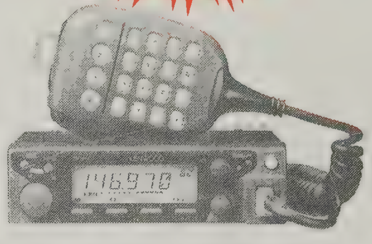
TM-541A – 1.2 GHz

$449.95
HRO Discount Price

This compact 1.2 GHz FM transceiver covers 1240-1300 MHz. It has 10 watts output on high power, 1 watt on low.

- 20 multifunction memory channels.
- Backlit microphone included.
- Optional DTSS unit allows selective calling and paging (DTU-2).
- Encode built in. Decode with KQT-8 option.
- Needs external 13.8 VDC power supply.

HRO
Discount Prices
TM261A $189.95
TM461A $449.95
TM331A $489.95



TM-261A – 2 meters
TM-461A – 70 cm
TM-331A – 220 MHz

Mobile communications just got easier with these fully equipped, user-friendly single banders. Both have high RF output, rugged construction (MIL-STD), 60+2 (call) multi-function memory channels, memory name function with 6-digit alphanumeric display, DTSS selective calling, multi scan capability, dual menu system, multi-function microphone and wireless cloning function. They also have air-band receive, auto repeater offset (TM-261A), repeater reverse switch, built-in CTCSS tone encoder (decode optional), busy channel lockout, auto power off and time-out timer.

KENWOOD

HANDHELDS

Dual Band

HRO
Discount Prices
G71A–$269.95
G71A-HP–$274.95

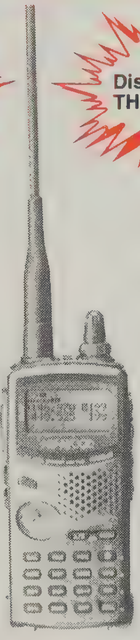
TH-G71A

$409.95
List Price

Looking for a compact, high performance 2 m / 70 cm dual-bander with an affordable price tag? The TH-G71A is the right rig. It fits easily in the palm of your hand.

- Backlit keypad.
- 6 watts (VHF), 5.5 watts (UHF) at 13.8 VDC.
- PC programmable with 200 memories with optional PG-4P.
- CTCSS tone scan.
- Wide frequency coverage including aircraft.
- DTMF memory.
- TM-V7A remote control (DTMF remote).

HRO
Discount Prices
TH-D7A $439.95



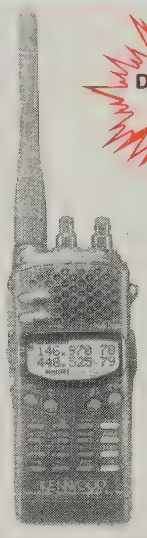
TH-D7A With APRS Operation

$519.95
Suggested List Price

Kenwood's deluxe dual band handheld features Automatic Packet Reporting System.™ APRS allows you to track mobile stations on a map on a computer screen. The TH-D7A includes a 1200 / 9600 built-in TNC and a program for dealing with date formats supported by APRS. Its display shows information each time correct APRS data is received; you do not need a computer. If you do not have a GPS receiver, you can manually enter your position. The TH-D7A has jacks to connect to your computer and to a GPS receiver.

- 2m / 440 MHz dual-band.
- Backlit Keypad.
- Aircraft receive and dual receive on same VHF band for voice and data.
- Call channel and CTCSS.
- 3 scan modes and 200 memories.
- DX packet cluster monitor.
- Wireless remote control.
- Sky command (KSS) operation.
- 16 digit, 10 DTMF autodial memories.
- VC-H1 messaging control.
- Large (12 digits X 3 lines) dot-matrix LCD.

HRO
Discount Price
TH-79KSS
$369.95



TH-79KSS Sky Command Ready

5 watts

$579.95
Suggested List Price

Kenwood's TH-79KSS Deluxe dual-band handheld offers operating ease and powerful performance in a compact, lightweight design. It is Sky Command Ready.

- Skip-Scan feature included.
- Dot-matrix LCD and menu system. Displays frequency data and a menu system with full alphanumeric function and settings
- 5.0 watts on both 2m and 440 MHz with PB-34 NiCd battery or with 13.8 VDC operation.
- 82 non-volatile memory channels, with ID. An alphanumeric ID (max. 7 characters) can be stored with each channel. No battery backup is needed.
- Features full-duplex cross-band operation. Can simultaneously receive two frequencies even on the same band.
- Equipped with a high efficiency FET power module.
- Guide function on the LCD panel display eliminates the need to carry a manual.
- DTMF key pad with DTMF memory function.
- Dual Tone Squelch with page.

Single Band

HRO
Discount Prices
22AT–$199.95
42AT–$319.95

TH-22AT

2m - $299.95

TH-42AT

70 cm - $389.95
Suggested List Prices

High Power
TH-22AT-HP
5 watts–
$229.95

These 2m or 440 MHz transceivers are ultra compact hand helds.

- Extended receiver coverage 136 - 174 MHz on the TH-22AT.
- Five watts output with optional PB-34 battery or 13.8 VDC.
- 3 selectable power output levels.
- Operates from 5.0 to 16 VDC allowing easy connection to the car battery or power supply.
- 40 memories with odd offset capability in one memory.
- Selectable memory channel number display mode.
- Multiple scanning functions.
- Tone alert system with received time indication.
- Wireless cloning function.
- Built-in CTCSS tone encoder, Time Out Timer, & busy channel lock out.
- DTSS Dual Tone Squelch System with pager function built-in.
- DTMF memory for auto-dial operation, five 15-digit channels.

Kenwood Handheld Specifications

Model	Freq Range	Power Supply	Power Out †	Current Transmit	Current Receive	Sensitivity	Height in (cm)	Width in (cm)	Depth in (cm)	Weight oz (g)	HRO Discount Price
TH-22AT	144-148 MHz	6 VDC	3 W	1.3 A	45 mA	<.16 µV	4.6 (11.7)	2.2 (5.6)	.96 (2.5)	10.2 (290)	$199.95
TH-42AT	438-450 MHz	6 VDC	2.5 W	1.6 A	45 mA	<.18 µV	4.6 (11.7)	2.2 (5.6)	.96 (2.5)	9 (242)	$319.95
TH-G71A	2m & 440 MHz	6 VDC	2.5 W	1.2 A	70 mA	<.18 µV	4.4 (11.2)	2.1 (5.4)	1.3 (3.3)	11.6 (330)	$329.95
TH-G71A-HP	2m & 440 MHz	6 VDC	2.5 W	1.2 A	70 mA	<.18 µV	4.4 (11.2)	2.1 (5.4)	1.3 (3.3)	11.6 (330)	$274.95
TH-79KSS	2m & 440 MHz	7 VDC	5 W	1.3 A	80 mA	<.18 µV	5.1 (12.9)	2.1 (5.6)	1.0 (2.5)	15.0 (400)	$369.95
TH-D7A (D)	2m & 440 MHz	6 VDC	5 W	1.8 A	45 mA	<.18 µV	4.75(11.9)	2.25(5.4)	1.5(3.5)	12.0(340)	$449.95

† Higher power output with optional batteries

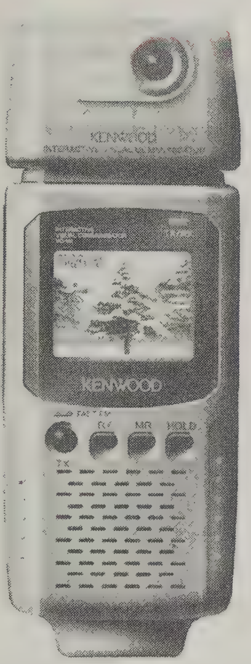
FAMILY RADIO SERVICE

SSTV

Portable SSTV VC-H1

$584.00
Suggested List Price

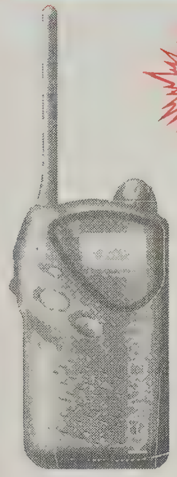
HRO Discount Price $349.95



The VC-H1 combines an image scan converter, CCD camera, and LCD monitor in a compact battery operated unit. Hook it up to your transceiver and start sending and receiving color images. It runs on 110 VAC or AA batteries making it perfect for portable operations like Field Day or special events. With the 1.8-inch color TFT screen, you can view incoming images or view your own prior to transmission. Has built-in mike and speaker. Stores up to 10 pictures. The VC-H1 can be controlled from a PC. PC connection with optional kit KCT-24S (Windows 95 required) to save pictures in JPEG format The PG-4t is a mobile connection cable option for $49.95.

Family Radio Service

HRO Special $79.95



Freetalk™ UBZ-LF14

$199.95 each
Suggested List

Use the 14 FCC Family Radio Service channels to keep in touch with your friends. No license is required.

The 38 CTCSS talk groups help you eliminate other conversations. With a talk group selected, you will hear transmissions only from your own group. In the scramble mode you can enjoy private conversations. Ring other radios just like a phone.

The HT has a back-lit LCD display, key lock to prevent accidental changing of channels, extended operation and battery save, auto power off, time-out timer and beep tone control. Options include SB-3 Neck Lanyard $35.00, UPB-2 NiCD $24.00, and UBC-3 NiCD Charger $36.00

HRO Price $59.95

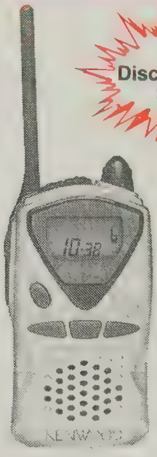
FreeTalk™*e* UBZ-AL14

The FreeTalk™*e* is an economical personal radio with 14 channels, 500 mW power output, operating range about 2 miles, 15 step up/down volume.

NEW!

HRO Discount Price $99.95

NEW!



FreeTalk™ UBZ-LH14

$134.95
Suggested List

The FreeTalk™ FRS HT radios offer a professional-style unit for the busy outdoorsmen. These are the ultimate way for outdoorsmen to keep in touch. These radios offer the same voice scrambling technology used by law enforcement agencies.

- 14 selectable UHF channels.
- 2 digit LCD backlit display.
- Low battery alert.
- Moisture proof construction..
- Built-in belt clip.
- Up to 30 hours of operation with alkaline cells and up to 2 miles range.

Kenwood Handheld Options

Option	Model	21BT 31BT 41BT	22AT 42AT	26AT 46AT	27AT 47AT	28A 48A 78A	25AT 45AT 75AT	77A	79A (D)	215AT 315AT 415AT	225 AT	235	2600A 3600A	HRO Price
Headset	HMC-3		*	*	*		*	*	*	*	*	*		$59.95
	EMC-1								*					$43.95
	EMC-3											*		$29.95
Speaker Mike	SMC-32	*	*	*	*	*	*	*	*	*	*	*	*	$52.95
	SMC-33		*	*	*	*		*	*			*		$65.95
	SMC-34		*	*	*	*		*	*			*		$39.95
Prog. Tone Decoder	KQT-8						*							$49.95
	TSU-7			*		std								$59.95
	TSU-8		*											$58.95
DC/DC Converter	KVC-1							*						$14.88
	PG-2W		*		*	*						*		$17.95
Filtered Cigarette Lighter Cord	PG-3J				*			*				*		$37.95
	PG-3E						*			*	*			$49.95
Base Quick Charge	BC-15A				*	*								$79.95
	KSC-14		*						*			*		$87.95
Battery Case	BT-8				*	*								$29.95
	BT-9		*						*					$29.95
	BT-10											*		$12.95
Softcase	SC-33					*								$21.95
	SC-34					*								$24.95
	SC-37		*											$24.95
	SC-39		*											$24.95
	SC-41								*					$24.95
	SC-43								*					$24.95
Wall Charger	BC-17		*											$29.95

YAESU

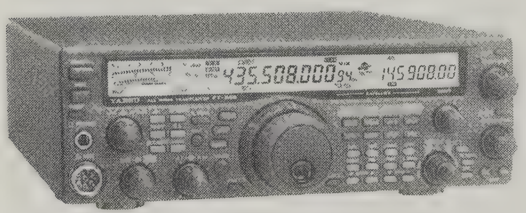
HF Plus 6m / 2m / 70 cm

$1349.95
HRO Discount Price

FT-100

The FT-100 miniature mobile transceiver provides 160-6m plus 2m and 70cm band coverage. Combining a unique, user-friendly front panel with high-tech features like Digital Signal Processing, the FT-100 performance exceeds that of many base station rigs. Ideal as a compact mobile, vacation or expedition transceiver, the FT-100 provides wide frequency coverage and operating versatility.

- Receive coverage 100 kHz-30 MHz, 30-970 MHz (cellular blocked).
- Transmits 160-6m, 144-148 Mhz, 430-450 MHz.
- SSB, CW, AM, FM, AFSK Packet (1200/9600 bps) operation.
- Power output 100w(160-6m), 50W (2m), 20W (70cm)
- DSP bandpass filter, notch filter and noise reduction.
- IF noise blanker.
- SSB, CW, AM, FM, AFSK modes plus packet (1200/9600 bps).
- Dual VFOs.
- Electronic memory keyer built in.
- Built-in CTCSS and DCS for FM.
- 200 memory channels and Quick Memory Bank (QMB).
- Smart Search™ Automatic Memory Channel Loading System.
- Bright LCD with multi-function display.
- VOX.
- Optional FC-20 External Antenna Tuner.
- Compatible with ATAS-100 antenna system.



FT-847 **$1799.95**

HRO Price

The all-purpose, all-mode FT-847 covers HF, 6m, 2m, and 440 MHz - ideal for satellite operation, packet, or any of your other ham activities.

- Crossband full duplex operation.
- 100 watts output on HF/ 6m; 50 watts on 2m / 430 MHz.
- Normal/ reverse tracking and dedicated satellite memories.
- 1200 / 9600 bps packet ready.
- DSP filters: notch, noise reduction, band pass.
- CW sidetone/pitch control.
- Direct frequency keypad entry.
- High resolution 0.1 Hz tuning steps for ultrasmooth tuning.
- Shuttle jog tuning dial.
- Built-in CTCSS / DCS encode / decode.
- Built-in low noise VHF/ UHF preamps.
- 13.8 VDC.

HRO
Discount Price
$2799.95

FT-1000MP

$3699.00
Suggested List Price

The Digital Specialist

Although this HF transceiver works in all modes (SSB, CW, FSK, AM, FM, Packet), it is optimized for digital communication modes. The enhanced digital signal processing (EDSP) system provides four random-noise reduction settings, selectable bandpass filtering with adjustable low and high cut responses, and transmitted audio enhancement. Also, an automatic seeking EDSP notch filter identifies and eliminates interfering heterodynes and carriers should they appear in the passband.

Two VFO knobs allow individual adjustments to the Main and Sub VFO's to provide in-band dual receive, even on different modes and bandwidths. The "Shuttle-jog™" tuning enhancement allows quick QSY up or down the band with a slight turn of the wrist.

Direct Digital Synthesizers (DDS) provide extremely fine funing steps, thirteen of them, selectable down to 0.625 Hz per step. A full-featured contest memory keyer, provides CQ message generation along with contest numbers.

Built-ins: a lightweight switch-mode AC power supply and a high-performance high-speed automatic antenna tuner, with 39 frequency information memories.

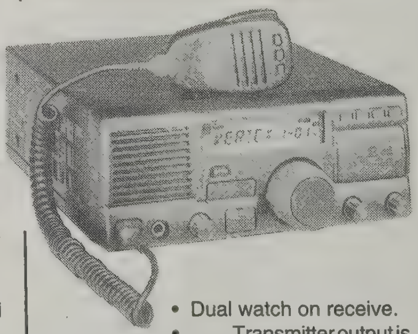
- General coverage receiver 100 kHz to 30 MHz.
- Power output 100 watts.
- Dual in-band receive with separate S meters.
- Collins mechanical filters: 455 kHz / 2.75 kHz SSB built in. A 455 kHz / 500 Hz CW is optional.
- Wide receiver dynamic range with separate, optimized FET RF preamps for high and low bands.
- Cat system capability with built-in RS-232C level converter.
- Transverter jack for VHF/UHF operation (display indicates actual frequency).
- Selectable antenna jacks. Separate receive-only antenna jack also included.
- Custom configuration via new menu system.
- Quick memory bank (QMB) system for instant recall of important memories.

Remote Control FH-1

The **FH-1** remote control will enhance the operating flexibility of your FT-10000MP. It permits remote control of the contest memory keyer, VFO/memory and main/ sub VFO. It connects by a 3.5 mm miniature mono plug to the REMOTE jack on the rear panel of the FT-1000MP.
HRO Discount Price: $88.95

FT-600

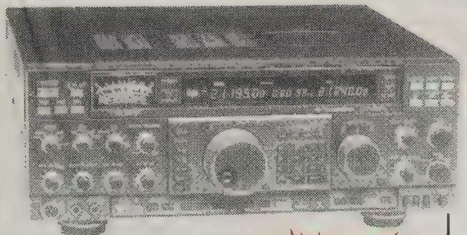
$899.95
HRO Discount Price



The compact FT-600 has a full coverage receiver from 50 kHz to 30 MHz with transmit on the amateur bands from 160 to 10 meters. It excels as an easy-to-use base station or mobile radio.

- Direct Digital Synthesis (DDS) and dual conversion receiver.
- 100 memory channels (4 banks of 25).
- Front mounted speaker with high audio output.
- Direct keypad frequency entry.
- Alphanumeric display.
- Selectable noise blanker.
- All modes USB, LSB, CW, AFSK & AM.
- Dual watch on receive.
- Transmitter output is 100 watts with 25 watts AM carrier.
- Has tuning steps of 10 Hz/100 Hz on CW/SSB and 100 Hz/1 kHz on AM.
- Accessories available include: FC-800 automatic antenna tuner, FIF-232C computer interface, FP-800 power supply and a complete selection of filters.

HF TRANSCEIVERS



HRO
Discount Price
$4199.95

FT-1000D

$5459.00
Suggested List

The FT-1000D extensively employs surface-mount components, 6 microprocessors, and five Direct Digital Synthesizers. Standard are: BPF-1 module for cross-band dual receive; TCXO-1 high stability oscillator; XF-C 2.4 kHz SSB filter; XF-D 2.0 kHz SSB Filter; and XF-E 500 Hz CW filter. Options are the XF-F 250 Hz CW filter; XF-455MC 600 Hz sub-receiver CW filter; and the DVS-2 Digital voice recording module.

- General coverage receiver from 100 kHz to 30 MHz.
- Simultaneous dual frequency reception.
- All mode operation (SSB, CW, FSK, AM, FM, Packet). Optimized for digital communications modes.
- Transmitter output is 200 watts. (50 watts AM).
- Special features for CW operation.
- Band pass filter BPF-1 module.
- 99 memories.
- CAT system for computer control.
- Built-in power supply.

FT-1000

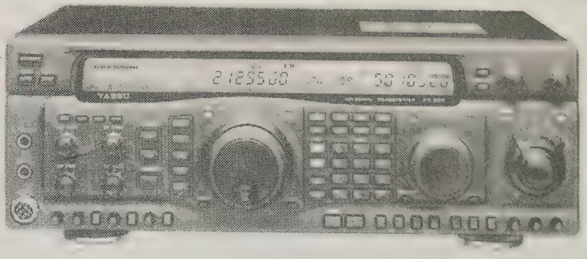
$3399.95
HRO Price

For the budget minded ham Yaesu offers the FT-1000. It has most of the features of the FT-1000D except the BPF-1, TCXO-1, XF-C, XF-D, XF-E listed for the FT-1000D. Additional options are available.

HRO
Discount Price
$1449.95

FT-920

$2299.00
Suggested List Price



The FT-920 state-of -the-art transceiver has many advanced features. It offers up to 100 watts of adjustable power on all amateur bands between 160 and 6 meters (25 watts carrier on AM) operating on SSB, CW, AM, AFSK and FSK. An FM module option is available.

The built-in high speed automatic antenna tuner adjusts both receive and transmit. The built-in Digital Voice Recorder allows storage and playback of incoming signals and stores up to four repetitive messages of up to 16 seconds each. Electronic Memory Keyer stores CW messages including incremented, imbedded contest numbers. Jacks on front and rear panels allow connection of keyer paddles to one jack and a computer or straight key to the other.

Receiver has Digital Signal Processing filters, automatic notch filter and noise reduction. The front end includes 10 input bandpass filters, PIN diode switching and optimized RF preamplifiers. It features dual VFO's, 99 regular memories, 10 split memories and the ability to assign alphanumeric labels.

FT-840

$739.95
HRO Discount Price

The FT-840 blends digital frequency synthesis with the operating convenience and affordability of its predecessor, the FT-747GX. As a back-up, mobile, or main station transceiver, the FT-840 has top-of-the-line quality, high-tech performance, and a wealth of features at an affordable price.

The intense LCD display affords sharp visibility in bright sunlight. Die-cast heat sink and internal thermally switched fan keep the FT-840 running cool. Modular design circuit boards ensure operating efficiency.

The FT-840 features a low noise front end with FET RF amplifier design. Two DDSs and magnetic encoder give silent, smooth tuning and fast switching. Twin band-stacking VFOs and automatic 10 m FM repeater offset with selectable CTCSS provide the best 10m repeater operation.

- General coverage receiver 100 kHz to 30 MHz.
- Transmit on amateur bands 160-10m.
- Direct digital synthesis (DDS).
- FM repeater operation with automatic 10 meter repeater offset.
- IF shift.
- 100 memories (independent transmit/receive per memory).
- Selectable CTCSS encode with optional FM-747.
- CW reverse feature.
- Choice of two optional antenna tuners: FC-10 Matching External Tuner or FC-800 External Remote Tuner.

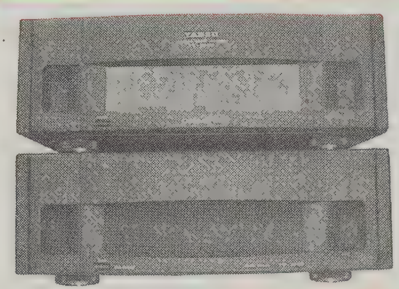
Yaesu HF Specifications

		Power Supply		Current Drain		Power Output									
Model	Frequency Range	AC	DC	Xmit	Rec	AM	FM	SSB	CW	Mike Z	Receive Circuitry	Sensitivity †	RIT/XIT Range	Audio Output	HRO Price
FT-1000D	100 kHz - 30 MHz	117/234		1050 VA	95 VA	50 W	200 W	200 W	200 W	500-600 Ω	Quad	< .25 µV	±9.975 kHz	2 W	$4,199.95
FT-1000MP	50kHz - 30 MHz		13.5 VDC	20 A	1.2 A	25 W	100 W	100 W	100 W	500-600 Ω	Double	< .25 µV	±300 Hz	1.5W	$2,799.95
FT-920	100 kHz - 30 MHz, 48-56MHz		13.5 VDC	22 A	2.0 A	25 W	100 W*	100 W	100 W	500-600 Ω	Double	< .25 µV	±9.99 kHz	1.5W	$1,449.95
FT-840	100 kHz - 30 MHz		13.8 VDC	20 A	1.2 A	25 W	100 W	100 W	100 W	500-600 Ω	Double	< .25 µV	±1.25 kHz	4 W	$739.95
FT-847	100 kHz - 30 MHz, 50-54 MHz, 144-148 MHz, 430-450 MHz		13.8 VDC	22 A	2.0 A	25 W 12.5 W 2m/70cm	100 W!	100 W!	100 W!	200-10K Ω	Double	< .25 µV	±9.99 kHz	1.5 W	$1,799.95
FT-600	100 kHz - 30 MHz	117/234	13.5 VDC	550 VA	80 VA	25 W	100 W	100 W	100 W	500-600 Ω	Triple	< .25 µV	±300 Hz	2 W	$899.95
FT-100	Same as FT-847		13.5 VDC	22 A	1.5 A	25 W	100 W 50 W@ 20W%	100 W 50 W@ 20W%	100 W 50 W@ 20W%	500-600 Ω	Double	< .25 µV	±9.99 kHz	2 W	$1,349.95

# The FT-990DC version operates on 13.8 VDC only. † Sensitivity measurements for 1.8-30 MHz SSB,CW *Optional module required ! 50 watts on 2m/70cm @2m %70cm

YAESU ACCESSORIES / AIRBAND

HF Amp & Power Supply



Quadra System
$5990.00
Suggested List

HRO Discount Price $3999.95

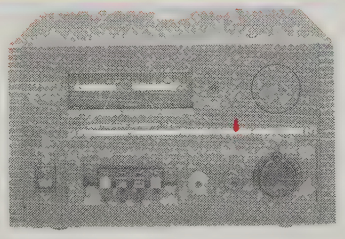
Here's all the linear amplifier you should need for operation on both HF (160 - 15 meters) and 6 meters. It is designed for automatic band switching with the FT-1000D, FT-1000MP, FT-920, FT-990 and the FT-900 HF radios.

The amp features 8 MRF150 power MOSFet transistors designed into 4 units of 2 transistors in a push-pull circuit at 48 VDC.

The separate power supply, the VP-1000 allows for easy installation. There are two input voltages, 117 VAC or 220 VAC. Output power is a function of the power supply voltages. At 220 VAC there is 1000 watts out on HF and 500 watts on 6 meters. At 117 VAC the output is 500 watts on HF.

The amplifier comes with a built-in high speed antenna tuner. It has four antenna outputs and two inputs. The multifunction omni-glow LCD display shows the status of the amplifier. There is automatic system monitoring with VSWR protection.

Power Supplies

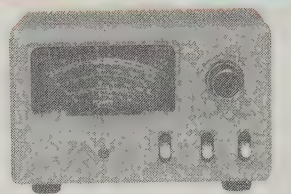


FP-1030A

Yaesu has three low profile switching powers supplies. The FP-712 gives 10 amps continuous service with 12 amps intermittent. The FP-1023A has 23 amps continuous and 25 intermittent. The FP-1030A is 25 amps with meters. Operates on 110 or 220 VAC.

HRO Prices:	**FP-712**	**$129.95**
	FP-1023A	**$129.95**
	FP-1030A	**$239.95**

Meters



YS-500	**YS-60**
$104.95	**$129.95**
HRO Price	HRO Price

Meters monitor average and peak transmitter power and voltage standing wave ratio (VSWR) of antenna systems in two way radio stations from 1.6 to 60 MHz (YS-60) or 140 to 525 MHz (YS-500). YS-60 requires 12 VDC for PEP operation.

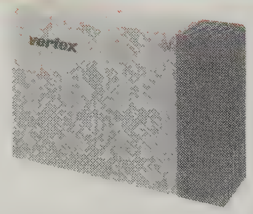
Antenna Tuner

FC-20

$269.95 – HRO Price

Controlled from the FT-847, the FC-20 will match your HF or 6m antenna. SWR 3:1 on HF and 2:1 on 6m. 100 memories of tuning data.

Repeaters



VXR-5000V / TA-DC

Covers 135-148 MHz for 2 m

VXR-5000U / TC-DC

Covers 440 MHz

- 12 VDC at 7 amp power requirement.
- 25 watts output at 100% duty cycle.
- Built-in CTCSS encode and decode.
- PC programming with optional VX VPL-1 programming cable.
- PC programmable hang and time-out timers.
- Includes DC power cable.
- Wall mount or put in a standard 19 inch rack with the optional mounting kit.
- Programming is extra.

DC Noise Filter

LF-1

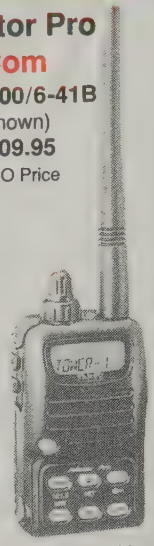
$26.95 – HRO Price

Especially designed for mobile use, consists of a heavy choke coil to surpress alternator DC line noise.

Airband Tranceivers

Aviator Pilot	**Aviator Pro**
Nav / Com	**Com**
VXA-100/16-41B	**VXA-100/6-41B**
(16-key version)	(shown)
$549.95	**$409.95**
HRO Price	HRO Price

NEW!



The Aviator Pro and Aviator Pilot transceivers are the result of more than 40 years of engineering experience and handheld transceiver design. The Aviators are the world's only airband transceivers rugged enough to pass the MIL-STD 810 testing.

The HT's can store up to 50 regular memory channels and come preprogrammed with 250 book memories. All memories can be PC programmed with the optional CT-64 programming kit. Features 5W PEP output at 9.6VDC.

The Aviator Pro is a 6 key aviation communications transceiver that includes all 760 airband channels.

The 16 key Aviator Pilot adds advanced navigation features. DVOR with TO and FROM indications, Automatic Bearing Centering System (ABCS) and large course deviation indicator (CDI) make VOR navigation a snap.

Microphones

MH-39

$84.95 – HRO Price

This compact mike for the FT-8500 gives you complete control of the rig from your hand.

MD-100 a8x

$125.95
HRO Price

This desk microphone features selectable low-cut filtering and high-emphasis active filtering that allow you to tailor the microphone response for optimum voice clarity or DX punch. It has a large push-to-talk switch and latching button, along with a large rotary up/down, slow/fast control for scanning.

The MD-100a8x is especially designed for the FT-1000MP and the FT-900, but can be used with the following Yaesu HF transceivers: FT-747GX, FT-757GXII, FT-890, FT-840, and FT-1000.

RECEIVERS

MOBILES

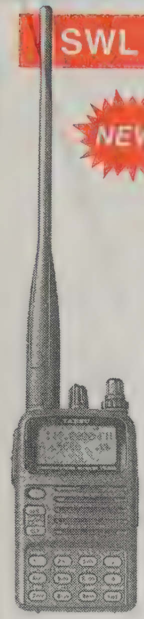
SWL Receivers

NEW!

VR-500

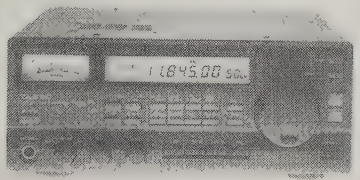
$339.95

HRO Discount Price



The VR-500 is a high performance miniature communications receiver providing general coverage reception from 100 kHz to 1300 MHz on the CW, SSB (LSB and USB), AM and FM (wide and narrow).

- Receives 0.1 to 12999.99995 Mhz (cellular blocked).
- Dual watch.
- Band Scope.
- 1000 memory channels, skip memory 100 channels, 10 channel search band, 10 channel dual receive, 1 priority channel.
- 8 character Alpha Numeric display.



FRG-100B

$599.95

HRO Discount Price

Receive CW, SSB, AM, and FM with this 50 kHz to 30 MHz general coverage receiver. Modes and other functions are push-button selectable from the front panel. A back-lit LCD with adjustable brightness shows frequency (down to 10 Hz) and operating status. 50 fully-tunable memory channels store frequency, mode and filter selection. Selectable steps of 10 Hz, 100 Hz, 1 kHz are standard–other increments are user programmable. Multi-function scanning (memory, band, selectable group, priority) with carrier or time-delay resume. Instant selection of 16 pre-programmed international AM broadcast bands (LW, MW through 11 meters), convenient and instant QSY. Has adjustable BFO, reverse BFO offset and selectable CW sideband. Optional 250 or 500 Hz crystal filters. Includes adjustable SSB carrier offset, selectable AGC rate, noise blanker, all-mode squelch and RF attenuation controls. Programmable On/Off Timer and Sleep Timer.

2 Meter Mobiles

FT-2600M

2 meters

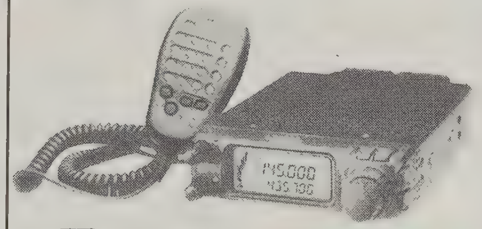
$219.95

HRO Price

NEW!

This compact FM mobile transceiver provides 60 Watts high power output. Its expanded receiver covers 134-174 MHz.

- Four selectable power levels.
- Direct frequency entry from mike keypad.
- Advanced track tuning protects from receiver intermodulation distortion.
- Packet capability for 1200 or 9600 baud.
- 175 memories store repeater shifts, CTCSS/DCS tones, 8-character alpha numeric labels.
- Built-in CTCSS and DCS encoder / decoder.
- Smart Search™ seeks active frequencies.
- Multi-function LCD display.
- Extensive menu allows customization.
- ARTS Auto-range transponder system.
- Also: Time Out Timer, Auto Power Off, Auto Repeater Shift, and S-meter squelch circuit.



FT-3000M

$399.95

HRO Price

70 Watt High Power

The FT-3000M is the only 70 watt High Power mobile available with a true wide band-receiver.

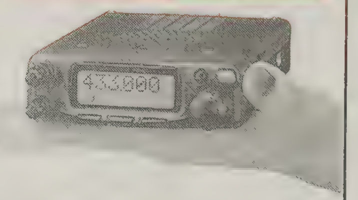
- Receives 110-180, 320-520, 800-999 MHz, cellular blocked.
- 70 watts high power (also 50, 25, 10 w).
- Large, alphanumeric LCD display.
- Backlit direct frequency entry DTMF mike.
- Keyboard or PC programmable with optional ADMS-2C (see page 26).
- 81 memory channels.
- DCS and CTCSS encode.
- Dual display w/ dual watch monitoring.
- Crossband repeat (UHF to VHF only).
- Accessories available: FP-800 20 amp power supply. FTS-27 CTCSS decode. DVS-4 digital voice unit. SP-7 external speaker.

2 m / 70 cm Dual Mobiles

FT-90R

$399.95

HRO Price



Yaesu's amazingly small high-power dual band mobile is less than four inches wide yet puts out 50 Watts on 2m and 35 Watts on 440 MHz.

- Receives 100-230 MHz, 300-530 MHz and 810-1000 MHz (cellular blocked). Includes aircraft.
- Removable front panel.
- Four levels of transmit power.
- Ready for 1200 or 9600 baud packet.
- Built-in CTCSS / DCS encoders / decoder.
- 186 memories with 7-character alpha numeric labels.
- Direct keypad frequency entry via MH-36 A6J DTMF microphone.
- Versatile scanning features.
- Adjustable display brightness and contrast.
- Programmable functions for front panel and mike keys.
- Menu for feature customization.
- TX time-out timer and auto power-off battery saver.
- Priority channel monitor.
- DCS code number search.
- ADMS Windows PC programmable.

HRO
Discount Price
$449.95

Remote Head Capable

FT-8100R

$699.00 – Suggested List Price

This high-performance receiver has excellent sensitivity with high immunity from overload and remote head capability. The transmitter has individually optimized power amplifier sections, efficiently cooled by an aluminum diecast chassis.

- Cross-band repeat, dual receive.
- Super-wide receiver coverage accesses 110 to 550 MHz and 750 to 1300 MHz (cellular blocked).
- Ready for 1200 or 9600 baud packet.
- (ABMS) Alternating-band memory scan can alternate quickly between VHF and UHF memory banks.
- DTMF autodialer.
- 110 memories (55 each band) store standard repeater shifts, CTCSS data, independent transmit and receive frequencies, packet baud rate and transmit power level.
- Selectable output power from 50 watts on VHF to 35 watts on UHF. Choose 10 or 5 watts on each band.

YAESU

DUAL- & TRI- BAND

Tri-Band

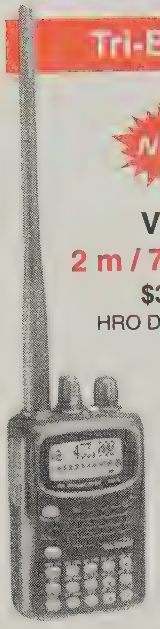
NEW!

VX-5R

2 m / 70 cm / 6m

$359.95

HRO Discount Price



This miniature tri-band FM transceiver has extensive receive frequency covrage (0.5-15995 Mhz, 48-728.990 Mhz, 800-998.990 MHz cellular blocked). Bands it receives include AM and FM broadcast, HF short-wave, VHF and UHF TV, VHF AM aircraft, and a wide range of commercial and public service frequencies. Provides 5 W out on 50-54 MHz and 144-148 MHz and 4.5 W on 430-450 MHz.. CTCSS and DCS built-in, dot matrix LCD, optional barometric sensor unit, dual watch, Spectra-Scope™ graphical display, 220 memories, 16 digit 9 memory DTMF autodialer, ADMS Windows™ PC programmable.

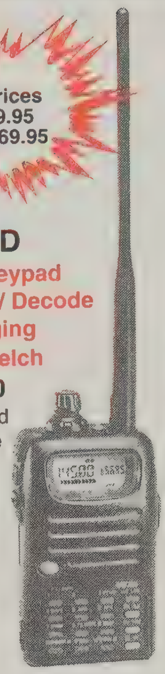
HRO
Discount Prices
50RD–$259.95
50RDHP–$269.95

FT-50RD

With DTMF keypad
CTCSS Encode / Decode
DVRS, Paging
Coded Squelch

$439.00

Suggested
List Price



Here's wide band receive coverage up to 999 MHz (cellular frequencies blocked) with AM, FM-N and FM-W filters. CTCSS and Digital Coded Squelch are included. The HT can be keyboard or PC programmed with the optional ADMS-1D programming system (see below).

Features include 112 memory channels each with offset, CTCSS / DCS and power level; up to 5 watts output; automatic tone search; digital DC voltage display and auto range transpond system to poll other stations to see if they are in simplex range.

Programming Kits

To Program Receiver:
ADMS-3
VR-500
HRO Price $38.95

To Program Handhelds:
ADMS-1E
FT-10/ 40/ 11/ 41/ 50 / 51/ VX-1R/VX-5R
HRO Price $38.95

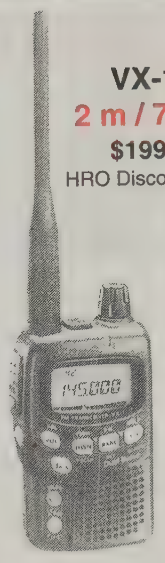
To Program Mobiles:
ADMS-2D
FT-3000 / 8000 / 8100 / 8500
HRO Price $39.95

VX-1R

2 m / 70 cm

$199.95

HRO Discount Price



The world has never seen a dual-band amateur handheld with ultra-wide frequency coverage in such a small package. At 3.2" x 1.9" x 1" it is just over 4 ounces. Output power is 500 mW with the standard battery and up to 1 watt with the optional EDC-15 power cable.

- Covers 76 to 999 MHz (cellular blocked).
- 291 memories with 6 digit alphanumeric display.
- Built-in CTCSS & DCS encoder/decoder.
- Dual watch to check subband activity.
- The Auto Range Transponder System (ARTS) provides one-touch "on-range" confirmation.
- One touch emergency button can be used for quick access to home channel.
- Quick setup of TV and FM with auto memory feature to scan and load channels.
- Automatic repeater shift, cloning one VX-1R to another, ADMS-1D for PC programming.

2 m
70 cm

FT-51R

2 Watt

$359.95

FT-51R / HP

5 Watt

$379.95

HRO
Prices

Shown with optional MH-29A2B Speaker Mike

The easy-to-use FT-51R has a scrolling instruction menu in the large, backlit display window. Spectra-scope™ displays real time, continuous scanning of activity on adjacent channels in VFO mode or 8 of your favorite memories. It has digital battery voltage display, five power levels, the largest backlit dual-band HT keypad made, Smart Mute™, and 2 VFOs on both VHF and UHF.

- 5 power output levels (20 mW to 5 watts) depending on battery selection.
- ADMS-1 programming software available.
- Clone from another FT-51R.
- Built-in DTMF decoder shows 8 characters.
- 120 memories (80 with alphanumeric display) store alpha, CTCSS, offset, power level, and split information. Multiple scan modes have individual channel lock-outs.
- Built-in crossband and one-way repeat functions.

Yaesu Handhelds

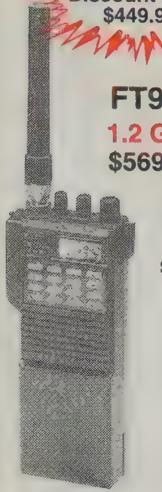
Model	Frequency	Mode	Pwr Supply	Power Out	Current Transmit	Drain Receive	Sensitivity	Height in (cm)	Width in (cm)	Depth in (cm)	Weight oz (g)	HRO Discount Price
FT-10R	144-148 MHz #	FM	6.0 VDC	2.5 W*	1.2 A	200 mA	.16 µV / 12dB	3.9 (9.9)	2.3(5.8)	1.2(3.0)	11.5 (325)	$229.95
FT-11R	144-148 MHz †	FM	4.8 VDC	1.5 W*	900 mA	16 mA	.15 µV / 12dB	3.9 (9.9)	2.2(5.5)	1.0(2.5)	9.5(280)	$189.95
FT-11R-HP	144-148 MHz †	FM	9.6 VDC	5 W	1.5 A @ 5W	17 mA	.15 µV / 12dB	3.9 (9.9)	2.3(5.5)	1.0(2.5)	13.9(400)	$209.95
FT-23R	144-148 MHz	FM	7.2 VDC	2 W*	900 mA	19 mA	.25 µV / 12dB	4.8 (12.2)	2.3(5.5)	1.3(3.2)	15(430)	$179.95
FT-33R	220-225 MHz	FM	12 VDC	5 W	1.3 A	19 mA	.25 µV / 12dB	4.8 (12.2)	2.3(5.5)	1.3(3.2)	15(430)	$279.95
FT-40R	430-450 MHz #		6.0 VDC	2.5 W*	1.5 A	200 mA	.16 µV / 12dB	3.9 (9.9)	2.3(5.8)	1.2(3.0)	11.5 (325)	$349.95
FT-41R	440-450 MHz	FM	4.8 VDC	1.5 W*	900 mA	15 mA	.17 µV / 12dB	3.9 (9.9)	2.3(5.5)	1.0(2.5)	9.5(280)	$189.95
FT-50RD	2m/70 cm	FM	6.0 VDC	2.5 W*	1.5/1.6 A	200 mA	.16 µV / 12dB	3.9 (9.9)	2.3(5.8)	1.2(3.0)	11.5 (325)	$259.95
FT-50RD-HP	2m/70 cm	FM	6.0 VDC	5 W		200 mA	.16 µV / 12dB	3.9 (9.9)	2.3(5.8)	1.2(3.0)	11.5 (325)	$269.95
FT-51R	2m/70 cm	FM	7.2 VDC	2.0/1.5 W*	900 mA	195 mA	.15 µV / 12dB	4.5 (12.3)	2.3 (5.5)	1.0 (2.6)	12 (330)	$359.95
FT-51R/HP	2m/70 cm	FM	4.8 VDC	2.0/1.5 W*	1.6/1.9 A	195 mA	.15 µV / 12dB	5.7 (14.6)	2.3 (5.5)	1.0 (2.6)	16.4 (450)	$379.95
FT-911	1240-1300 MHz	FM	7.2 VDC	1W	900 mA	150 mA	.2 µV / 12dB	4.8(12.2)	2.3(5.5)	1.3(3.2)	13(380)	$449.95
VX-1R	.5- 999 MHz@	FM	3.6 VDC	0.5W	500 mA	150 mA	.16 µV / 12dB	3.2(8.1)	1.9(4.7)	1(2.5)	4(125)	$199.95
VXF-10	14 FRS Chan.	FM	3.6 VDC	0.5W				4.2(10.6)	2.2(5.4)	1(2.5)	4(125)	$99.95

* Power output can be increased depending on the battery pack selected † Extended receiver range and AM aircraft capabilities # Extended Rx range @Cell Phone Blocked

SINGLE-BAND HANDHELDS

HRO
Discount Price
$449.95

FT911
1.2 GHz
$569.95



Suggested
List
Price

This 1.2 GHz ultra-compact handheld offers features found previously only in larger units.

- 49 memories; 2 VFO's.
- Multiple scanning options.
- Uses the same battery packs as the FT-23 series. The FNB-17 is the standard pack.
- Rubber gasket seals offer protection.
- Standard CTCSS encode / decode included.
- Backlit keyboard and large LCD display.
- Automatic frequency control.
- DTMF encode with 10 auto-dial memories and direct key pad entry.
- Automatic power off.
- VOX operation with optional YH-2 headset.

HRO
Discount Prices
23R-HP–$179.95
33R–$279.95

FT-23R
2 meters
$309.95
FT-33R
220 MHz
$369.95

Suggested
List Prices

Yaesu's original compact handhelds are still available. They offer the budget-minded amateur an attractive hand-held. Both models have LCD display with S meter.

- Up to five watts output with optional FNB-12S.
- Multiple scanning options.
- 10 memories with 7 storing odd splits.
- Aluminum alloy case with water resistant seals.
- Optional: CTCSS encode / decode (FTS-12) and DTMF pad (FTT-4).
- Auto battery saver.

FT-11R
2 meters
$189.95
FT-11R-HP
2 meters
$209.95
FT-41R
70 cm
$189.95

HRO
Discount
Prices

The FT-11R-HP is a high-power, 5 watt version of Yaesu's easy-to-operate compact handhelds.

- Compact battery design–4.8 volts produces 1.5 watts output.
- Back-lit up/down, volume/squelch controls.
- Wide receive coverage on FT11: 100-180 MHz including AM aircraft.
- Six character alphanumeric display.
- MOSFET power module.
- TX/RX battery savers.
- 5 watts output with 9.6 VDC (optional battery required).
- Large full-sized back-lit DTMF keypad.
- 150 memory channels.
- Built-in DTMF paging/ coded squelch.

FT-10R
2 meters

FT-40R
440 MHz

See table below
for pricing
on various
configurations.

A multitude of exclusive features sets the 2m FT-10R and 70 cm FT-40R apart. Foremost is the choice of four keypads. These are the first ham handhelds with a MIL-STD 810 rating.

- 2.5 (FNB-40) or 5 (FNB-41) watts.
- Digital coded squelch encode / decode.
- Battery savers.
- Compact, clamshell design.
- ARTS, Auto Range Transpond System.
- High audio output.
- Alpha-numeric display.
- Optional PC programming.
- Dual watch.
- High speed scanning.
- Direct FM improves voice and packet performance.
- Deluxe models have 99 memories and automatic tone search.

FRS

HRO
Discount Price
$89.95

Family
Radio
Service

VXF-10
$159.00
Suggested
List Price

The VXF-10 Adventurer™ portable radio provides 500 mW of quiet, reliable two-way communications within a 2 mile range. It is thin and light weight to easily fit in your pocket. All 14 available FRS UHF channels are included and no FCC operating license is required.

The VXF-10 includes a one-touch Weather Channel key, Call Alert and Emergency Calling feature. Get up to 30 hours of operation with 3 AA batteries or continuous operation with the optional EDC-15 car adapter. Includes Digital Coded Squelch (DCS) and the exclusive ARTS (Auto Range Transpond System) to alert you when a similarly programmed VXF-1 is out of range.

Yaesu Handheld Batteries and Chargers

Battery	Voltage VDC	Rating mAh	Wall Charger	Desk Charger	Radio Series	HRO Price Battery Only
FNB-2	10.8	425	NC-9B		FT-208/708	$49.95
FNB-4A	12	500	NC-18	NC-50	FT-727/109/209/709	$64.95
FNB-12S	12	600	NC-18	NC-50	FT-23/33/73/411/470	$71.95
FNB-14	7.2	1000	NC-34	NC-50	FT-23/33/73/411/470	$59.95
FNB-17	7.2	600	NC-28	NC-50	FT-23/33/73/411/470	$52.95
FNB-25	7.2	600	NC-28B	NC-50	FT-26/76/415/416/ 530/815/816	$39.95
FNB-26	7.2	1000	NC-34B	NC-50	FT-26/76/415/416/ 530/815/816	$55.95
FNB-27	12	600	NC-18B	NC-50	FT-26/76/415/416/ 530/815/816	$62.95
FNB-31	4.8	600		NC-50	FT-11/41/51	$47.95
FNB-33	4.8	1000		NC-50	FT-11/41/51	$62.95
FNB-38	9.6	600		NC-50	FT-11/41/51	$75.95
FNB-40	6	650	NC-60	NC-50	FT-10R/40R	$48.95
FNB-41	9.6	600	NC-60	NC-50	FT-10R/40R	$58.95
FNB-42	9.6	1100	NC-60	NC-50	FT-10R/40R	$62.95
FNB-53	3.6	700	NC-66		VXF-1R	$19.95
FNB-52LI	3.6		NC-66		VX-1R	$36.95
FNB-58LI	7.2	1100	NC-72B		VX-5R	$69.95

FT-10R 2m HT Models

Model	Keypad	Channels	Digital Voice Recorder	Battery Pack	HRO Discount Price
FT-10R/40B-A06	6	30	no	FNB-40	$249.95
FT-10R/41B-A06	6	30	no	FNB-41	$279.95
FT-10R/40B-A16	16	30	no	FNB-40	$259.95
FT-10R/41B-A16	16	30	no	FNB-41	$269.95
FT-10R/40B-A16D	16	99	no	FNB-40	$279.95
FT-10R/41B-A16D	16	99	no	FNB-41	$289.95
FT-10R/40B-A16S	16	99	yes	FNB-40	$284.95
FT-10R/41B-A16S	16	99	yes	FNB-41	$299.95

YAESU HANDHELD ACCESSORIES

Accessory	Model	10R 40R 50 R	11 41	51R	23R 33R 73R	26 76	209RH	103R 203R 703R	411 811 911	415 815	416 816	470	530	VX-1R	VX-5R	VXF-1 VXF-10	HRO Price
Headset/Boom Mike	YH-2				*	*	*	*	*	*	*	*	*				$30.95
Mike "Y" Adapter	CT-30	*															$10.95
VOX Headset	VC-22		*														$62.95
VOX Headset	VC-23	*															$62.95
VOX Headset	VC-25													*	*	*	$62.00
Speaker/Mike	MH-32		*		*	*	*	*	*	*	*	*	*				$30.95
Speaker/Mike	MH-34B4B	*															$30.95
Speaker/Mike	MH-34A4B													*		*	$30.95
Speaker/Mike w/Display	MH-29			*									*				$99.95
Speaker/Mike	MH-30C2B		*		*				*						*		$45.95
Speaker/Mike	MH-34B4B																$30.00
Speaker/Mike w/Earphone Jack	MH-35A2B		*														$30.95
Mini Ear Piece Mike	MH-37A2B	*															$30.95
Ear Piece Mike	MH-37A4B														*		$30.00
Ear Piece Mike	MH37B2B	*	*	*	*	*	*	*	*	*	*	*	*	*		*	$30.95
Lapel Mic/Ear Piece	MH-37B4B													*		*	$30.95
Ear Phone	FEP-10	*												*			$9.95
Tone Squelch	FTS-6						*										$35.95
Tone squelch	FTS-12				*												$55.95
Tone Squelch	FTS-17A					*			std	std	std	std	std				$47.95
CTCSS Decode	FTS-26											*					$47.95
DC/DC adapter	PA-6				*				*			*					$30.95
DC/DC adapter	EDC-5B	*				*				*	*		*		*		$26.95
DC/DC adapter	EDC-6	*													*		$6.00
DC Adpt w/Trickle Charger	EDC-12		*														$38.95
DC/DC adapter	EDC-15													*		*	$38.95
Wall Charger 117 VAC	NC-9B						*	*									$15.95
Wall Charger 117 VAC	NC-18B				*	*	std	*	*	*	*	*	*				$14.95
Wall Charger 117 VAC	NC-28B				*	*			std	std	std	std	std				$14.95
Wall Charger 110 VAC	NC-34B					*											$14.95
Wall Charger 117 VAC	NC-60B	*															$16.95
Wall Charger 117 VAC	NC-66B													*		*	$18.95
Wall Charger 117 VAC	NC-72B														*		$18.00
Wall Charger 220 VAC	NC-9C						*	*									$17.95
Wall Charger 220 VAC	NC-18C				*		*	*	*	*	*	*	*				$15.95
Wall Charger 220 VAC	NC-28C				*	*			*	*	*	*					$26.95
Wall Charger 220 VAC	NC-34C				*	*			*	*	*	*	*				$22.95
Mobile Charger	CD-2			*													$99.95
Rapid Charger	CD-15														*		$29.00
Quick charger	NC-50	*	*	*	*	*			*	*	*	*	*				$92.95
Battery 600 mAh 12V	FNB-12S				*				*			*					$71.95
Battery 1000 mAh 7.2V	FNB-14				*				*			*					$59.95
Battery 600 mAh 7.2 V	FNB-17				std				std			std					$52.95
Battery 600 mAh 12 V	FNB-27					*				*	*		*				$62.95
Battery 600 mAh 4.8 V	FNB-31		*	*													$47.95
Battery 1000 mAh 4.8 V	FNB-33		*	*													$62.95
Battery 600 mAh 9.6 V	FNB-38		*	*													$75.95
Battery 650 mAh 6.0 V	FNB-40	*															$48.95
Battery 600 mAh 9.6 V	FNB-41	*															$58.95
Battery 1100 mAh 9.6 V	FNB-42	*															$62.95
Battery 600 mAh 6.0 V	FNB-49	*															$29.95
Battery 1100 mAh 7.2 V	FNB-V47	*															$55.95
Battery 700 mAh 3.6 V	FNB-52LI													*			$36.95
Battery	FNB-53															*	$19.95
Battery	FNB-58LI														*		$69.00
Battery case	FBA-12					*				*	*		*				$19.95
Battery case	FBA-14		*	*													$19.95
Battery case	FBA-15	*															$19.95
Battery case AA batteries	FBA-17				*				*			*					$25.95
Battery case AA batteries	FBA-20													*			$22.95
Battery case AA batteries	FBA-23														*		$25.00
Battery Cable Extender	PA-17	*															$49.95
Cloning Cable	CT-27	*															$10.95
Cloning Cable	CT-35		*														$19.95
Mike Adapter	CT-44													*	*		$12.00
Ant Adapt BNC - Rev SMA	CN-2	*															$8.95
Ant Adapt SMA - BNC	CN-3	*												*	*		$8.00
Belt Clip	Clip 10	*															$7.95
Radio case	CSC-V10	*															$35.95
Radio case FNB-11	CSC-38								*								$19.95
Radio Case FNB-25	CSC-50									*	*						$22.95
Radio Case FNB-26/27	CSC-52									*	*						$19.95
Radio case FNB-25/FBA12	CSC-53					*											$22.95
Radio case FNB-26/27	CSC-55					*											$22.95
Radio Case FNB-25	CSC-56												*				$22.95
Radio case FNB-26/27	CSC-58												*				$17.95
Radio case FNB-41/FBA-15	CSC-68	*															$16.95
Radio case FNB-40	CSC-69	*															$16.95
Radio case	CSC-73	*													*		$19.95
Barometric Sensor Pressure Unit	SU-1														*		$35.00

Radio Cases for Yaesu HTs

Cases are available for Yaesu handheld radios. Please contact your closest HRO store or call one of the toll free numbers for information on the case that matches your HT. Several options to match the various radios and the battery packs that are used.

NC-50 Charger Adapters

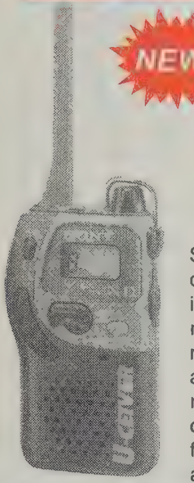
The NC-50 quick charger supports most Yaesu hand-held batteries. An appropriate adapter is required. The adapters and batteries supported are shown in the adjacent table.

Model	Batteries Supported	HRO Price
CA-7	FNB-12/14/17	$27.95
CA-8	FNB-25/26/27	$27.95
CA-10	FNB-31/33/38	$14.95
CA-14	FNB-40/41/42	$25.95

RADIOS

SONY

Family Radio



NEW!

2-Way Radio System
ICB-U655
$99.95 – HRO Price

Sony's high quality 2-way radio communications system is easy to use. No license is required. It features 14 channels with 38 privacy codes and transmits up to a 2 mile range. Group talk and auto channel scan provides for efficient communication. Has auto power-off, backlit LCD display, battery level indicator and belt clip. The water-resistant case comes in gray or yellow.

Crank-Up AM / FM Radio

ICF-B200
HRO Price
$79.95

NEW!

The ICF-B200 AM/FM radio has a built-in high efficiency power generator. You never have to worry about batteries again. It is great for camping trips or when power is not available. May also be powered on 2 optional AA batteries. It comes in a "safety orange" color so it will be easily seen. Covers the standard AM and FM frequencies.

Packet Cables

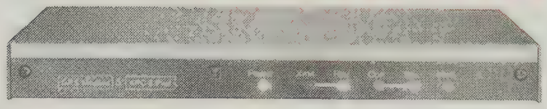
RB Enterprises

Connect your packet rig and radio with a premade cable. *Limited availability.*

Model	Description	Radio DIN (Pins)	HRO Price
MRJ-I	MFJ / AEA to Icom 281 / 2000 / 2100	5	$19.95
MRJ-K	MFJ / AEA to Kenwood modular	5	$19.95
MRJ-Y	MFJ / AEA to Yaesu modular	5	$19.95
KD-12	Kantronics mini-DIN 1200	6	$19.95

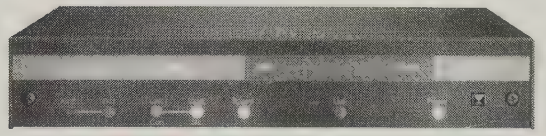
PACKET & HF MODEMS

Kantronics



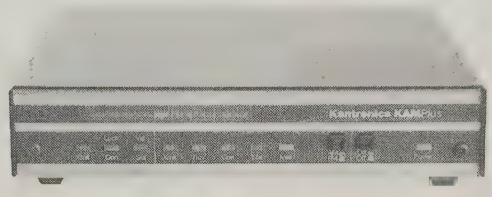
GPS Tracker with Packet Modem

GPS tracker and the packet modem can be used independently or simultaneously. Gives automatic location fixes and logs beaconed fix locations. The tracker is easily configured to report vehicle location. Just install the Garmin GA-27 GPS antenna (included) on one side of the vehicle's trunk lid and a VHF or UHF antenna on the other side. Apply a single +12VDC power source and install your radio callsign and beacon rate using a standard laptop computer and terminal program. Has DB-9 radio port, DB-25 RS-232 computer port, power connector, GPS antenna, and DB-9 GPS port. **HRO Price $599.95**



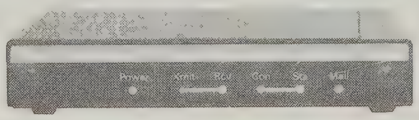
KAM '98 – HF and VHF TNC

Built on the proud tradition of the KAM Plus, the KAM '98 is a single port, multi-mode controller that increases flexibility and compliments the new radios on the market today. Four A/D ports in and an AUX port for telemetry operations. **HRO Price $399.95**



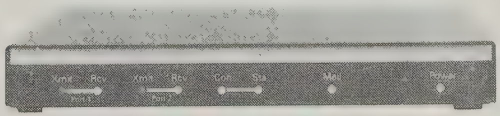
KAM Plus – Dual Port HF / VHF TNC

The famous KAM Plus! A dual-port modem for HF and VHF transmission. A long-time favorite of Kantronics customers **HRO Price $339.95**



KPC-3 Plus – VHF / UHF TNC

A longtime favorite of VHF amateurs! This fun-to-use single port TNC supports GPS, APRS, Pacterm '98, WEFAX, EMWIN, KISS mode for TCP/IP. Shipped with 128K, can operate with 512K or RAM. **HRO Price $159.95**



KPC-9612 Plus
Dual-Speed, Dual-Port TNC

Features one 1200 baud port and one 9600 baud port. Same features as the KPC-3 Plus, but adds a high speed port for 4800 to 38400 baud packet. High speed port requires a "data ready" radio. **HRO Price $329.95**

Keeping Up to Date . . .

The KAM '98 and KPC-3 Plus are now available with version 8.3 firmware, providing a second serial port for GPS and APRS capabilities, plus additional GPS improvements. The KAM Plus and KPC-9612 Plus are shown below and are surrently sold at Version 8.2, with advanced digipeating for GPS, plus the ability to download EMWIN weather broadcasts. All models work great with Pacterm '98, our estabished software for Windows 95/98/NT users.

KPC-9612 add-on Board

Add a third port to your KPC-9612 Plus! 1200 or 9600 board available. See the Kantronics website for technical details.

HRO Prices:

1200 board	**$99.95**
9600 Board	**$125.95**

Software

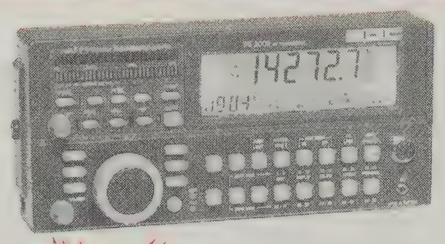
Pacterm '98

Windows '95 Comm Program for Kantronics TNCs. This program supports all of the TNCs listed above and follows Windows 95 style guidelines. **HRO Price $79.95**

Software is sold on a nonreturnable basis. Any software problems will be resolved under the terms of the manufacturer's warranty.

Kantronics web page:
www.
kantronics.com

SGC



HRO
Discount Price
$1799.95

SG-2000
PowerTalk ADSP

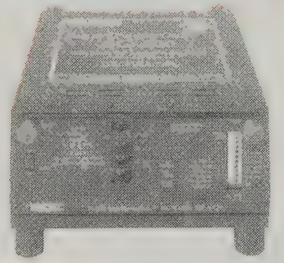
$1995.95
Suggested List Price

The PowerTalk™ SG-2000 packs advanced ADSP and SNS technology into a slim, state-of-the-art, control head. PowerTalk™ greatly increases signal clarity and drastically reduces noise. With SGC's precision tuning features, bright red and green LED's provides precise visual tuning of high, low, and center frequencies. Preset and user-programmable memories allow quick recall of ADSP, SNS, and high, low, center, and notch filter settings for easy operation. A high performance spinner knob gives you hands-on tuning. It 644 ITU and ham frequencies including SITOR / AMTOR / PAKTOR telex channels permanently etched into memory, plus 100 user-programmable frequencies and easy Weatherfax connections. It has 150 watts of power, an extra-large, extra-bright LCD display, and the latest surface mount technology. PowerTalk™ is a no compromise HF-SSB power tool. **Note: This radio must be special ordered.**

HF Amplifier

SG-500

$1199.95
HRO Discount Price

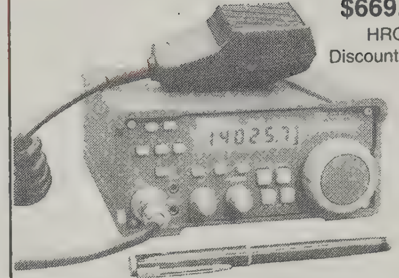


The Smart Power Cube produces tremendous power–nearly as much as a 1 KW amplifier–yet it requires less than one cubic foot of space. Electronic brain power makes it possible. The SG-500 is an intelligent, microprocessor controlled, high-powered linear amplifier, designed with high efficiency transistors. It constantly monitors your HF-SSB's activities, power needs, and antenna condition, and automatically–in less than 15 milliseconds–selects the right broadband filter. It can reliably produce, essentially unattended, in the most demanding conditions. Power supply required. SGC PS50 recommended to guarantee specifications. **Now available in export or domestic version.**

- Fully automatic band switching, 12 VDC.
- Input overdrive.
- Over temperature, over current protection.
- Frequency coverage 1.8-24 MHz.
- Power output:
  SSB: 500 watts PEP
  CW:500 W for 10 minutes; 500 W continuous with fan
  AM: 250 watts carrier maximum

SG-2020

$669.95
HRO
Discount Price



The SG-2020 is a compact, low power transceiver with the features and performance of a modern, full-size transceiver. It covers 160 through 10 meters and has a general coverage receiver from 1.8 to 30 MHz. The power output is front panel adjustable from 0 to 20 watts PEP. The rig has RF speech processing, 20 memories, LSB/USB, break-in CW, built-in mode 'B' Iambic keyer adjustable from 5 to 60 WPM and memory scan.

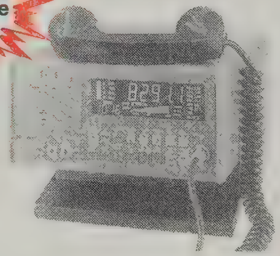
SG-2020
PortaPak Portable System

$1149.95
HRO Discount Price

The SG-2020 PortaPak is a portable package and accessories designed for professional portable applications. The overall size of the system is just 2-7/9 by 16-3/8 inches. It has an adjustable nylon strap for carrying over the shoulder or by hand. It is protected against most climatic conditions but is not waterproof. The stainless steel latches provide secure connection of the battery pack and front panel cover. System includes the SG-2020 transceiver, "D" cell battery container, standard SGC microphone and front panel cover for storing the microphone. Overall weight including standard batteries (not supplied) is 11 pounds.

HRO
Discount Price
$1599.95

Pictured with Optional
Handset Microphone



SG-2000

$1695.95
Suggested List
Price

The SG-2000 is a rugged commercial grade all-mode HF transceiver that provides 150 watts PEP output. 100 user defined channels can be set to ham frequencies. The transmit frequency range is 1.8 to 30 MHz; receive range is 500 kHz to 30 MHz. The SG-2000 can be fully controlled by any standard RS-232 protocol connector. This allows easy implementation of all digital modes. The front panel can be removed to act as a remote head for mobile operation For more information on this HF transceiver, contact HRO. **Note: This radio must be special ordered.**

HF Mobile Antennas

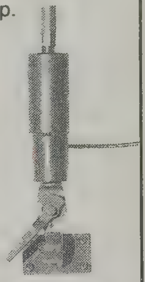
SG-307

$319.95
HRO Price

The SG-307 is a durable, lightweight mobile antenna. Its dual element design makes it a high efficiency radiator. The single fiberglass whip, helically wound, has a primary resonance at 8 MHz and a secondary resonance at 25 MHz. It has a frequency range of 1 to 60 MHz and supports up to 150 watts PEP or CW. At frequencies under 25 MHz, the SG-307 will outperform a conventional 9-foot whip.

SG-303
With Ratchet Mount

$479.95
HRO Price



The SG-303 high performance mobile antenna is built to operate in rough terrain and extreme climatic conditions. The light weight, low cost SG-303 operates between 1.8 and 30 MHz with power handling from 3 to 500 watts PEP. Nine feet in length, it consists of two sections of helically wound whip mounted on a sturdy professional weatherproof rubber spring.

It mounts on an adjustable ratchet mechanism. The base adjusts for the best attachment to the vehicle and the antenna ratchet permits orienting the whip from vertical to horizontal. It is a perfect match for the SGC line of antenna couplers. It has a lifetime warranty.

Dipole Antenna

SG-103

$299.95
HRO Price

The SGC broadband dipole provides optimum performance for a frequency range of 2 to 28 MHz and handles 150 watts PEP. The length is 90 feet. It has an impedance of 50 ohms and uses an SO-239 connector.

HF-SSB Automatic Antenna Couplers

HRO
Discount Price
$499.95

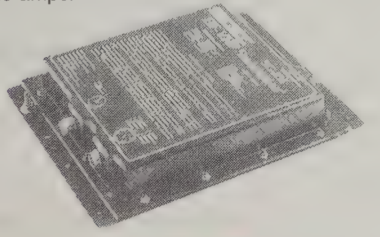
SMARTUNER®

HF-SSB Antenna Coupler SG-230

$550.95
Suggested List Price

SGC's Smartuner HF antenna coupler combines fully-computerized operation with a wide range of antenna matching possibilities. It is a versatile, clever, automatic device with quite surprising capabilities even on random wires. The Smartuner works with any HF rig.

- Tunes itself on an SSB signal. It does not need a constant carrier.
- Matches antennas from 2.5 to 27 meters long. A minimum length of 8 meters (25 feet) is required for 160 meter operation.
- Operates continuously from 1.8 to 30 MHz.
- Memorizes tuning which has already been done. There are 500 memory spots.
- The perfect addition to your marine-mobile installation.
- Tunes unknown antennas in just two seconds.
- Tunes a known antenna in milliseconds.
- Needs no bandswitching information, special low power tune-up or special wiring.
- 10 to 150 watts input power.
- Input impedance range is 45 to 55 ohms.
- DC operating voltage range is 10 to 15 VDC .9 amps.



VHF-HF Antenna Coupler

SG-231 – $529.95
HRO Discount Price

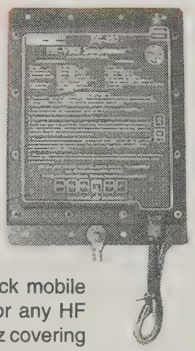
The SG-231 is a fully automatic coupler for 100 watts for 1.0 to 60 MHz. It uses a microprocessor controlled pi or L network to match most any load to your rig with the SWR always 1:1.5 or better. Tuning solutions are stored in non-volatile memory for fast automatic recall. Operates from 3 to 100 watts and required 12VDC.

PORTA Smartuner®

Worlds Smallest High-Performance Antenna Coupler SG-237

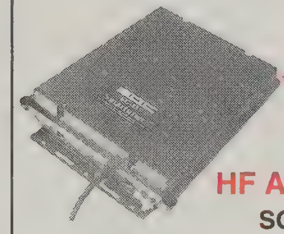
NEW!

$259.95
HRO Discount Price



The SG-237 is designed for quick mobile set-up or base operation. It is for any HF SSB operation from 1.8 to 60 MHz covering 6 meters. It is stable enough to be self supporting on the ground or installed on a balcony. The tuner can be fed with ladder line or end fed antenna.

- Supplied with 9 feet single jacketed control cord and coaxial cable plus a ground system of radial wires each 12 feet long.
- Any 9 foot whip will provide good operation above 3.5 MHz. For operation at 1.8 MHz, at least 28 feet of wire or a 20 x 20 foot loop is recommended.
- Optional whip antenna available.
- 170 location memory capacity
- Operates on 3 to 100 watts PEP and 40 watts maximum on CW.
- Impedance range is 45 to 55 ohms.
- Requires 10.5 to 18 VDC at 300 mA.



HRO
Discount Price
$1499.95

HF Antenna Coupler

SG-235 – $1595
Suggested List Price

The SG-235 is a fully automatic coupler for 500 watts that will tune an antenna at least 23 feet long for the HF bands. The SG-235 automatically evaluates and switches 64 input and 32 output capacitor combinations plus 256 inductance combinations in a pi network design. The tuner remembers the chosen frequency and tuning values and automatically reselects those values when transmitting on that frequency. Powerful in combination with the SG-500.

DC Coaxial Line Isolator

SG-54-70

$89.95 for Set of Two
HRO Discount Price

These devices allow up to 25 VDC @ 1.5 Amp to be supplied more than 150 feet via the RF transmission line. Instead of running a separate power cable, use the coax to provide DC power to antenna couplers, antenna switches, pre-amplifiers, or other DC powered equipment at the antenna end of the line. Two isolators required per installation. Broadband isolators provide better than 80 Db isolation for 1.5 MHz through 30 MHz, better 40 Db through 250 MHz.

QMS-7

Antenna Coupler System

$1299.95
HRO Discount Privce

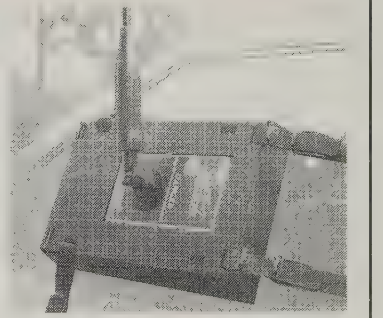
The QMS-7 is an HF antenna tuner system that can be strapped to the side of your vehicle.

The package includes an SGC SG-231 automatic antenna coupler, an SGC-307 extended full range antenna, and the special exterior, waterproof, mounting package.

Mounting the coupler and antenna outside the vehicle reduces engine noise, interference and eliminates feed loss. It can be quickly installed and easily moved from vehicle to vehicle.

The SG-231 Smarttuner is the working brain of the QMS-7 system. It automatically tunes just about any antenna (7' minimum) from 3 to 100 watts and from 1 to 60 MHz.

The SG-307 is a durable, lightweight antenna designed for mobile applications. It is a single fiberglass whip, helically wound, with primary resonance at 8 MHz and secondary at 25 MHz.



QMS-2

$999.95
HRO Price

The QMS-2 provides a configuration alternative to the QMS-7. The QMS-2 uses the SG-230 Smartuner plus the 9 foot SG-303 antenna. It supports 200 watts and covers 1.8 to 30 MHz.

QMS-3

$2299.95
HRO Price

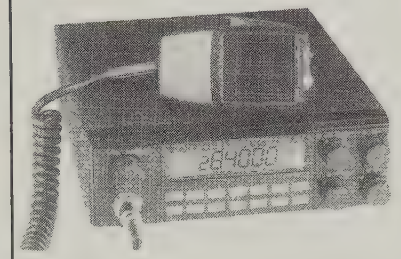
The QMS-3 is another Smarttuner – mobile antenna combination using the SG-235 antenna tuner and the 9 foot SG-303 antenna. The QMS-3 handles 500 watts and covers 3.0 to 30 MHz.

HF / 6m TRANSCEIVERS

10m Mobiles

RANGER Communications, Inc.

Choose from two Ranger 10 meter amateur transceivers: the 25-watt RCI-2950 or the 100-watt RCI-2970.



RCI-2950

$449.95

Suggested List Price
Call for HRO Discount Price

Ranger's RCI-2950 is built for reliability providing a wealth of features. It has full 10 m band coverage and all-mode communications. The ten most used frequencies can be pre-programmed for easy access.

- Full band coverage 28.0 - 29.6999 MHz.
- All mode (USB, LSB, CW, AM, FM).
- Large, easy-to-read backlit LCD display with four-step brightness control.
- Tuning steps 100 Hz; 1, 10, & 100 kHz; 1 MHz.
- CTCSS encoder / decoder (optional).
- Repeater offset switch with standard offsets.
- Built-in dual VFO.
- RIT for fine tuning up to ±3 kHz.
- Noise blanker.
- Selectable programmable tone.
- Transmitter output of 25 W for SSB, 12 W CW and 8 W AM / FM.
- RF gain control and RF power selector.
- Receive sensitivity AM 0.5 µV, SSB .15 µV, FM .25 µV.

RCI-2970

$599.95

Suggested List Price
Call for HRO Discount Price

This 10 meter HF transceiver has similar performance and features to the RCI-2950 except it provides **100** watts PEP output.

HF + 6 Meters

JRC

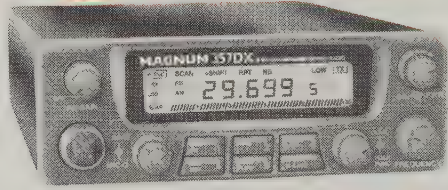
JST-245

$2399.95 – HRO Price

The JST-245 HF transceiver covers the amateur HF bands plus 6 meters. It is compact and includes a switching AC power supply and an automatic antenna tuner. It features variable tuning, multiple antenna selection, dual IF filters, variable bandwidth control and notch tracking. There is a full coverage receiver for 100kHz to 54 MHz. Modes include SSB, CW, AM, FM and AFSK. Output is 15 to 150 watts continuously variable. CW operations are full break-in and an electronic keyer is included. There are 200 memory channels to store frequency, split, mode, filter, AGC, antenna, shift, tone. All mode squelch, VOX and RF speech processor included.

10 Meter Transceiver

RF Limited



Only control head is shown

Magnum 357DX

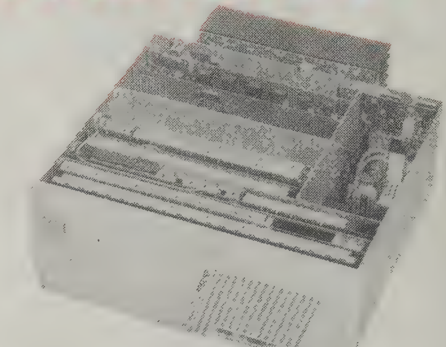
NEW!

$399.95 – HRO Price

The Magnum 357DX is a microprocessor controlled, compact 10m mobile transceiver with a control deck and a separate high power RF deck. The control and RF decks are connected by a 9 foot control cable. The rig covers the 10m band (28.0-29.669MHz) in all modes (AM / FM / USB / LSB). The output power is 100 W FM, 50 W AM and 150-200 W PEP for SSB with continuous variable RF power output. It has a large backlit LCD, selectable resolution (100 khz, 10 kHz or 1 kHz), 5 memory channels, repeater offset switch with programmable offsets, noise blanker, last frequency recall, frequency scan and scanning microphone. RX sensitivity is 0.25 µV AM / SSB and 0.3µV FM. Requires 12-13.8 VDC at 35 A maximum.

Computer Control HF

KACHINA



HF Transceiver

HRO Prices

505DSP	505DSP/AT
$1995.95	**$2189.95**

Most hams already have the ultimate radio controller in their shack–the personal computer. Use your computer to control the 505DSP HF transceiver. On screen help menus get you started and keep you going. Most functions are intuitive with drop-down menus and hot keys. The system is 100 percent PC controlled under Windows 3.1, Windows 95 or NT.

All amateur HF bands are covered with a general coverage receiver (0.1 to 30 MHz). USB, LSB, CW and AM modes are included. Requires 13.8 VDC at 25 amps maximum for transmit. SSB sensitivity is 0.18 µV. Transmitter output is 100 watts SSB / CW and 25 watts AM.

Other features include an IF stage with 16/24 bit DSP processing, 1 Hz DDS tuning, built-in test and frequency calibration, band sweep display with point and click transceiver tuning, on screen antenna Smith chart, and logging software. The 505DSP/AT model includes an automatic antenna tuner.

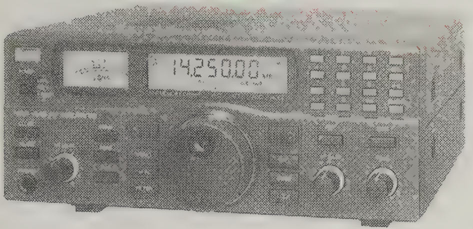
- Commercial quality and specifications with plug-in modular construction.
- Digital compensated reference oscillator. Frequency tuning is under microprocessor control in 1 Hz steps.
- High dynamic range DSP receiver.
- May be positioned vertically, horizontally or remotely mounted up to 75 feet away.
- Separate control head is designed to mount into unused PC drive bays.
- Socket provided for outboard TNC's or other external modems controlled from your PC.
- CW features include control of rise and fall time, weighting and speed control, 100 Hz CW filter, and nine 60 character CW message memories.
- Telephone remote option for controlling rig over telephone lines.
- Optional 505AR Antenna Rotator Interface remotely controls most rotators from the computer.
- On-line users guide provides HELP menus to guide your through all radio functions

HF LISTENING

SHORTWAVE LISTENING

HF Receivers

JRC

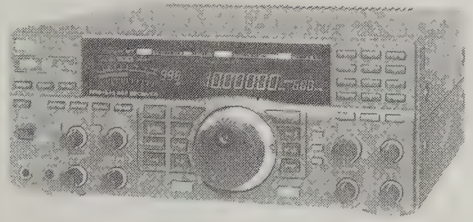


NRD-345

$779.95 – HRO Price

The NRD-345 HF receiver was developed for BCL and SWL fans who want to enjoy the world's broadcast programs and shortwave communications with sound clarity under good, interference-free air conditions. In shortwave propagation, however, there is a typical phenomenon call fading. To solve this, the NRD-345 incorporates an AM synchronous detection circuit to produce a constant level of regenerative carrier synchronized with the received carrier in phase and frequency. The receiver is a compact, lightweight, refined design and offers advanced multifunctions.

- Frequency range 0.1 to 30 MHz.
- Modes: AM, SAM, CW, SSB, FAX.
- 100 memory channels.
- 12 VDC at 0.8 amp.
- AM synchronous detection.
- Noise blanker.
- Uses one-chip DSS-IC.
- High sensitivity and wide dynamic range.
- Clock/timer function.
- Computer control.
- Multiple memory and frequency scanning.



NRD-545

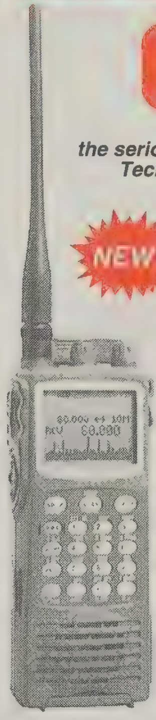
$1799.95 – HRO Price

The NRD-545 HF receiver provides the reproduction of clear, distortion free sound through the application of 40-bit digital signal processing (DSP). 13 type of circuits are now handled by the DSP unit to include all mode detection, IF filter, pass band shift, noise reduction, beat canceller, noise blanker, notch filter, AGC, BFO, RF Gain, squelch, tone control and s-meter. Features a variable tuning system, high sensitivity, wide dynamic range RTTY demodulation, large LCD display, remote control by a personal computer. The NRD-545 covers .01 to 30 MHz and 30 MHz to 200 MHz with the optional board. Covers all modes with outstanding sensitivity.

SWL Receivers

AOR

Discover AOR,
the serious choice in Advanced
Technology Receivers.



NEW!

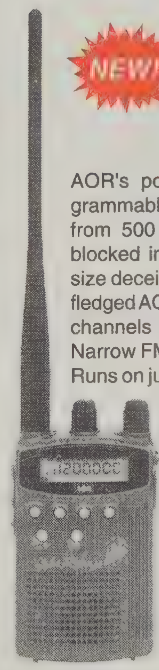
AR8200B All-Mode

$599.95

HRO Discount Price

AR8200B Wide Range Receiver is an all-new design, not an update. "All Mode" reception includes "super narrow" FM, wide and narrow AM; USB, LSB, CW and standard AM and FM modes. Covers 500 KHz ~ 2040 MHz * with 1,000 memory channels (20 banks of 50 ch.). True carrier reinsertion in SSB modes. Includes 3 KHz SSB filter! Detachable MW antenna with negative feedback. Computer control and programming (requires optional connection cable). Download free control software from AOR web site! Optional internal cards expand capabilities. Many more features and accessory choices!

*Cellular frequencies blocked in compliance with USA regulations. Continuous coverage model available for authorized users/agencies. Documentation required.



NEW!

AR16B Receiver

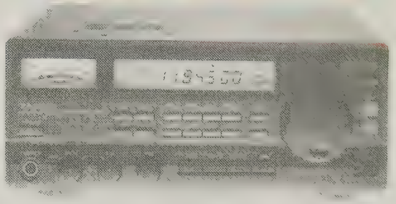
$249.95

HRO Discount Price

AOR's pocket-sized computer programmable* Wide Ranger™ covers from 500 KHz to 1.3 GHz (cellular blocked in USA). Don't let its small size deceive you. The AR16B is a full-fledged AOR receiver with 500 memory channels (5 banks of 100 channels), Narrow FM, Wide FM and AM modes. Runs on just two AA Alkaline cells and has loud, clear audio. Additional features include 21 preset frequency band settings, voice de-scrambling function, monitor function to receive weak signals, S-meter, multiple operating profiles, backlit keypad and display, twelve selectable channel steps and more!

* separate computer program required

YAESU



FRG-100B

$599.95

HRO Price

Yaesu's high performance receiver provides general coverage in CW, SSB, AM and FM modes from 50 kHz to 30 MHz.

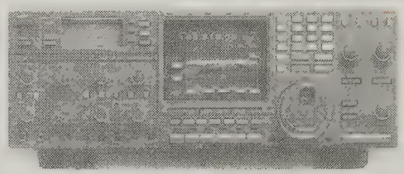
- Selectable standard tuning steps plus user-programmable steps.
- LCD display with 10 Hz read-out.
- Broadcast band selection mode.
- 50 tunable memory channels.
- Multi-function scanning.
- Adjustable BFO with selectable CW sideband.
- Optional FM unit and CW filters.

ICOM

IC-R9000

$5999.95

HRO Price



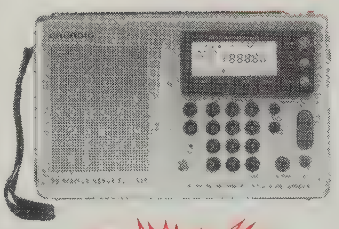
Notice: Federal and State Government Agencies and Communications Customers Only

Icom's top-of-the-line receives 100 kHz to 1999.8 MHz. Eleven bandpass filters use GaAsFETs for the VHF and UHF bands. Modes include: LSB, USB, CW, AM, FM, WFM (wide-FM) and FSK. The receiver has a multifunctional CRT display with spectrum scope to provide information on the status of the radio as well as incoming signals. It shows contents of the memories, dual clocks, weekly and daily timers, and frequencies of the dual VFO's. Dynamic range is 60 dB and sensitivity is approximately 1μV.

SWL Books on Pages 41, 47, 50

SWL RECEIVERS

GRUNDIG



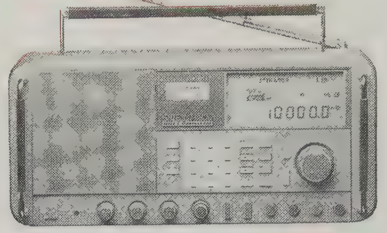
HRO
Discount Price
$189.95

Yacht Boy 400PE

$269.95
Suggested List Price

The Yacht Boy 400PE covers AM (520-1710 kHz), FM (87.5-108 MHz), SW (1.6-30 MHz), LW (144-351 kHz). The 400PE receives single sideband signals from amateur radio as well as military and commercial air-to-ground and ship-to-shore. It is excellent for the beginner to the advanced listener, especially for users needing a small radio with full features.

- Shortwave, longwave, AM and FM modes from 1.6 to 30 MHz with no tuning gaps.
- 40 programmable memory presets allow quick access to favorite stations.
- The LCD multifunction display simultaneously shows the time, frequency, band, automatic turn-on, and sleep timer.
- Clock, alarm and timer features provide dual alarm modes (beeper and radio). Dual clocks show time in 24 hour format. The sleep timer is programmable in 15 minute increments to 60 minutes.
- Enter frequencies directly by using the front panel key pad and the radio will automatically select the correct band.
- Operates on six "AA" batteries (not supplied) or use the included AC adapter on 110-120 VAC.
- The receiver comes in a pouch with earphones and a 23 foot "reel" antenna for shortwave reception.



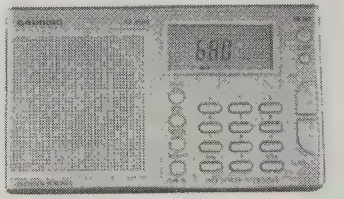
Satellit 800 Millennium

NEW!

$TBA
Suggested List Price

The Satellit 800 offers multi-mode reception of AM, FM stereo, SSB (USB / LSB) and VHF aircraft band over an extensive frequency range: 100-30,000 kHz, 87-108 MHz, and 118-137 MHz. To aid in tuning there are three built-in bandwidths. High dynamic range allows detection of weak signals among the strong.

A large, multifunction LCD panel displays operating parameters. Frequency display to 100 hertz accuracy. Tune by direct frequency entry, pushbutton, or tuning knob. Features 70 memories, memory scan, dual clocks, and dual programmable timers. Separate bass and treble controls adjust tone. Jacks for headphones or external speakers allow you to listen to FM stereo. External antenna connections available or use built-in telescoping antenna. Operates on six internal D-cell batteries or the included AC wall transformer.



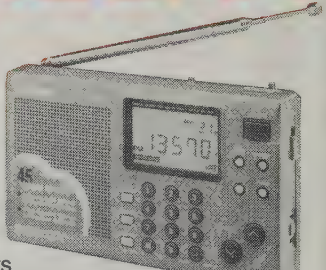
Yacht Boy 300PE

NEW!

$119.95
Suggested List Price

The Yacht Boy 300PE covers broadcast AM and FM (in stereo by earphones), and 13 SW bands from 2.3-26.1 MHz. Features digital tuning and display with 24 memories and direct frequency entry. Includes clock and 90-minute sleep timer. Has a dynamic micro-speaker and a jack for earphones. Use the telescoping antenna or attach an external antenna to the jack provided. Preserve the titanium-look finish with the protective travel pouch included.

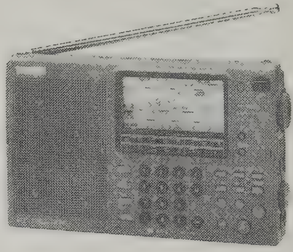
SANGEAN



ATS-404

$89.95
HRO Discount Price

This digital, AM/FM stereo shortwave receiver offers the features and performance of more expensive receivers, but at an affordable price. It provides continuous coverage all shortwave bands and any frequency in between; has an auto preset system; auto memory scan; human wake system; illuminated display with seconds display; keypad entry; 45 preset memories; auto/manual search and 12/24 hour display.

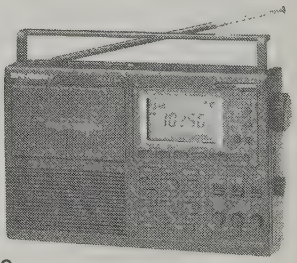


ATS-909

$239.95
HRO DIscount Price

Sangean's ATS-909 is a full featured, portable SWL receiver.

- 306 memories: 261 SW, 18 MW, 18 FM, 9 LW.
- 5 tuning methods.
- ATS Auto Tuning System.
- SSB (LSB and USB) with 40 Hz tuning steps.
- Wide / narrow filter.
- Manual editing to insert 8 alpha-numeric characters on the display.
- Auto SW Search.
- Direct recall of a favorite station.
- 3 individual timers.
- Mono / stereo selector switch.
- PLL dual conversion receiver with tone control.
- Separate audio recorder output & standby control jacks.



ATS-818CS

$219.95
HRO Price

Sangean's portable world band receiver with built-in cassette recorder offers more features and performance than many other table-top short wave receivers.

- Covers all SW bands from 120 m to 11 m.
- Covers FM broadcast band.
- RF gain control.
- Has BFO for receiving SSB and CW.
- Memories store your favorite frequencies.
- Dual time display and clock alarm.

SONY SWL RECEIVERS

ICF-SW100S

$349.95 – HRO Price

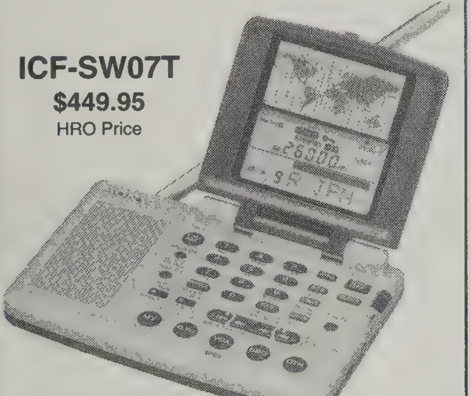
The heart of this world-band radio system is a multi-band receiver the size of a cassette case. It weighs only 8 ounces with batteries. The kit provided includes a carrying case, a separate active antenna, multi-voltage AC adapter and in-the-ear stereo headphones.

- Covers FM 76-108 MHz, 150 kHz to 29.995 MHz plus SSB.
- Access frequencies directly with key pad.
- 50 station memory presets.
- Band selector accesses SW bands.
- Auto-scan search; pauses for 1.5 seconds.
- LCD has 24 city name/time display.
- Built-in clock with alarm and sleep timer.
- Two position tone control.
- Requires 2 AA batteries (not supplied) or power from the AC adapter included.
- Jacks for an external speaker, external antenna and DC in (3 volts).

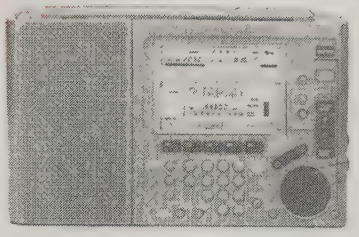
ICF-SW07T

$449.95

HRO Price



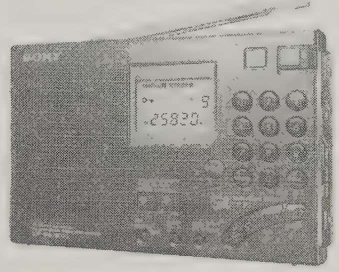
This world band radio comes with the AN-LP2 active antenna and features synchronous detection AM, and SSB. Also receives FM. Covers FM 76-108 MHz, SW 1,621-29,999 kHz, MW 530-1,620 kHz, LW 150-529 kHz. Uses 2 AA batteries (not supplied). Includes AC adapter.



ICF-SW77

$449.95 – HRO Price

The ICF-SW77 is the step-up model of the popular ICF-2010. It has provisions for 150 station memory presets to find your favorite station quickly. For better tuning, the ICF-SW77 has 50 Hz tuning resolution. Enter the name of a station and it will display when the particular memory is selected.



ICF-SW7600G

$199.95 – HRO Price

Travelers love this versatile World Band Radio® receiver with stereo FM reception and instant access to all channels and bands. The built-in clock timer has sleep and stand by functions.

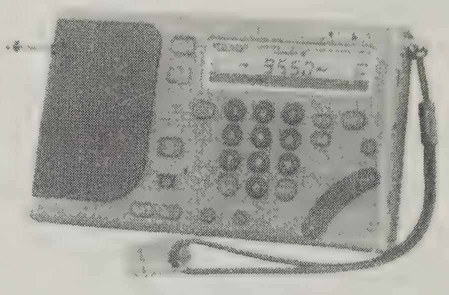
- AM (LW, MW, SW) / FM stereo reception
- Dual-conversion superheterodyne circuitry
- 10-key Direct Access™ tuning.
- PLL quartz synthesis tuning gives accurate, drift-free frequency selection.
- SSB circuitry for reception of voice and Morse code (CW) on amateur bands.
- Manual and automatic scan tuning.
- The display is liquid crystal (LCD).
- Antennas include a built-in ferrite bar for MW and LW and a telescoping whip.
- A jack provides easy antenna connection.
- A 3" speaker and high / low tone provides a wide range of sound for music or news.
- Requires 4 AA batteries (not included) or the optional worldwide AC adapter.

ICF-2010

$359.95 – HRO Price

This popular portable SWL receiver is a super-compact world band radio that delivers fast direct access tuning with great accuracy.

- AM coverage 150-29.999 MHz.
- FM broadcast band coverage.
- Dual PLL quartz frequency tuning provides stability and reduces drift.
- Built-in quartz clock and Sleep Timer with 15, 30 or 60 minute settings.
- Has BFO for receiving USB, LSB and CW.
- Instant recall of 32 station presets.
- Memory scan tuning samples preset stations.
- Automatic band scan gives a sample of each station on the selected band.
- Switchable IF bandwidth has narrow mode.
- Comes with the AC-DC adapter.
- The clock requires 2 AA batteries (not included). **These must be installed for the radio to work.**



ICF-SW1000T

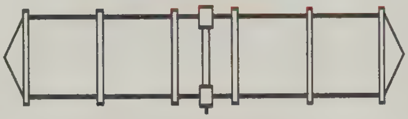
$429.95 – HRO Price

This world band radio has a built-in cassette player / recorder with auto reverse, auto tape select and a feather-touch mechanism. It has timer record capability with cue and review. The built-in clock also has alarm and sleep functions.• SSB, FM stereo, AM (LW/MW/SW)

- 10-key direct access tuning.
- 1 kHz step tuning.
- 32 station memory presets.
- Dual standby.
- The detector circuitry is synchronous.

Shortwave Listening Antennas

B&W



SWL Antenna
ASW-90

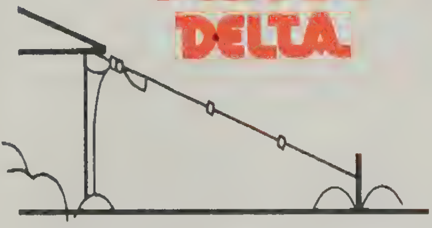
- 0.5 - 30 MHz in only 90 feet.
- SWR less than 2:1 from 0.5-30 MHz.
- Comes completely assembled.
- No tuner required.
- Very low noise.
- 50 Ohm input with SO-239.
- Install as flat, inverted vee, or sloper.

HRO Price $98.95

Long Wire Antenna Kit
ASW-100

Complete kit includes 100 feet of #14 Copperweld wire, 50 feet lead-in wire, insulators and 25 feet of rope. Easy to set up. **HRO Price $42.95**

ALPHA DELTA



DX-SWL

The **DX-SWL** is tuned for the most popular SWL bands (13, 16, 18, 19, 21, 25, 31, 41, 49, 90 and 120 meters). It can be used as a multiband transmit antenna with the appropriate antenna tuner. Length is 60 feet. Requires a single support. Standard coax connects antenna to your radio. Feed point is 50 ohms. SO-239 connection. **HRO Price $79.95**

DX-ULTRA

The multi-element **DX-ULTRA** has extremely low-noise performance. Tapered wing design allows broadband operation. Configure as dipole, inverted vee, or sloper. Covers MW, tropical, SW, government, military, embassy, maritime, aircraft, and commercial frequencies. 80 feet long. Made with ISO-RES inductors and parallel wire elements. Uses the Delta-C center insulator, Delta-CIN end insulators, and 12 gauge solid copper wire with grey PVC insulation. Elements are separated by grey PVC rod. **HRO Price $109.95**

DYMEK

DA100E
The World's Most Respected Short-Wave Active Antenna

Frequency Coverage: 50 kHz to 30 MHz, continuous.
Height: 4 feet 8" (142cm).
Output Impedance: Switch select 50, 100, 500 ohms.
Attenuation: Switch selectable 0,10, 20 dB.
Power Required: 110-120 or 220-240 VAC switch selectable, 50-60 Hz, 4 watts, or 12 VDC 0.4 Amp.
Dimensions:
Antenna Module: 3.75"W x 4.375"H x 2"D (9.5 x 11 x 5cm).
Power Supply: 6.5"W x 3"H x 7.5"D (16.5 x 7.6 x 19cm).
Shipping weight: 9 lbs (4.1 kg).
HRO Price $179.95

Antenna Supermarket

SWL Sloper

The Sloper covers SWL bands from 11-120 meters. Automatic band switching. SO-239 connector for attaching coaxial cable. **HRO Price $79.95**

Eavesdropper™

This high performance trapped dipole for the 11-60 meter SWL bands is 42 feet long. Twin lead or coax models are available. **HRO Price $79.95**

SONY

Active Antenna
AN-1

For the SW listener with space problems, the AN-1 has a frequency range of 150 kHz to 30 MHz. Has a low noise FET in the built-in preamp. Built-in attenuator. Requires 6 AA batteries or AC-12 adapter. Antenna can be used inside or outside. Comes with 39 feet of cable. **HRO Price $99.95**

Radio Protectors

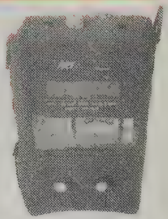
The Pouch

Secure Shock Absorber

New design water resistant carrying cases are made of bouncy, tough neoprene and nylon. A bungee type parachute cord restraining strap secures the HT. Has a durable quick-release clasp on a web belt loop.

Models	HRO Prices
1R&AF-738	$12.95
10T/ 50R/PR	$14.95
508-Q7, S-510 -T8	$14.95
2G,V5T,95T,32-5T	$14.95
All Others	$17.95

Analyzer POUCH



Neoprene & nylon plus water-resistant padding protect your analyzer. Clear window over readouts. Back-pocket for accessories. Adjustable shoulder strap included. Specify any model. **HRO Price $24.95**

ChestPOUCH

"Hands-free" security. Double-ply cordura "bib" with adjustable harness. Pouches for radio & spare battery. Pen holders and big pocket on back for accessories. Specify ANY radio or pouch. **HRO Price $25.95**

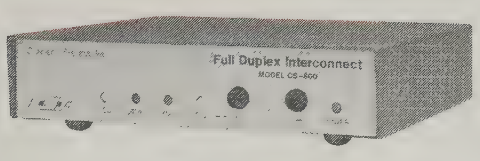
Manu-facturer	Radio Model	Pouch Model	Battery Size
ADI	AT-201 / 401 / 600	T2A	for lower pwr
		S1	for high pwr
	PR-52 / 222	PR	
Alinco	DJ-C1T / C4T / C5T	AF-738	
	DJ-S11 / S41T /S46T	P5	
	DJ-G5T	32-5T	
	DJ-V5T	V5T	
	DJ-195T	95T	
	DJ-280T	VX3T	
Icom	IC-2GXAT	2G	
	IC-21 / 41A	P5	
	IC-Q7A	508-Q7	
	IC-T2H	T2A	
	IC-T8A	S510-T8	
	IC-T22A / 42A	P5	
	IC-T81A	S510-T8	
	IC-W32	32-5T	
Kenwood	TH-D7A	DTX	
	TH-22AT / 42AT	SS	
	G71A	G71	
	TH-79KSS	S1	for 2.7 watt
		S2	for 5.0 watt
	UBZ-LF14	P4V	Reg or hi-pwr
Standard	C-156A	P5	for all
	C-508A	508-Q7	
	C-510A	S-510-T8	
	C-568A	P5	
Yaesu	VX-1R	1R	
	VX-5R	5R	
	FT-10R / FT-50R	10R/50R	for 2 & 5 watt
	FT-51R/HP	SS	

Telephone Interconnects

CSI

Connect Systems manufactures a wide range of telephone interconnects and commercial equipment. Please contact HRO or visit the CSI Worldwide Web page at http://www.connectsystems.com

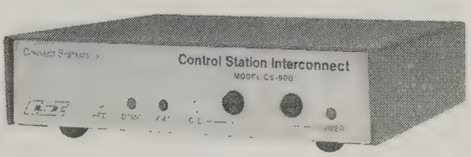
Full Duplex Interconnect and Repeater Maker



CS-800

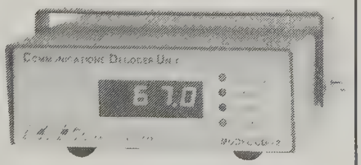
This low cost automatic, full d-uplex patch converts your dual band base and dual band handheld or mobile into a cellular like duplex phone system. A built-in repeater maker can be enabled which makes the CS-800 suitable for private or club repeater/ auto patch use. The CS-800 comes with standard features unavailable in competing brands such as 90 memory speed dialer, redial, hookflash, CW ID, advanced toll restricts, secret toll override access code, built-in programming keypad and digital readout, tone / pulse dial out, and more. The only connections required are to the mike and speaker jacks of your rig. Fully FCC and DOC approved. **HRO Price $349.95**

CS-900 Simplex Interconnect



This low cost automatic simplex patch converts your single band base and handheld or mobile into a powerful phone system. A 1/2 second digital voice delay prevents word clipping caused by transceiver and vox switching speed. It can be used base to mobile or through repeaters to extend range (phone-base-repeater-mobile and back mobile-repeater-base-phone). The CS-900 comes with many standard features unavailable in competing brands such as 90 memory speed dialer, redial, hookflash, CW ID, advanced toll restricts, 10 programmable toll override sequences, secret toll override access code, tone/pulse dialout and more. It can be user programmed using the built-in keypad with digital readout, over the air using DTMF, or from any telephone. The only connections required are to the mike and speaker jacks. Fully FCC and DOC approved. **HRO Price $349.95**

CD-2 Communications Decoder



The CD-2 decodes and displays 51 CTCSS tones and 112 DCS codes originating on the channel you are monitoring. DTMF tones are decoded and displayed as they occur and are replayed a second time slowly so that you can read high speed auto-dialers etc. The gimbol makes the CD-2 easy to mount in a vehicle so you can easily determine which CTCSS tone is nee98he RS-232 port can transport all decoded data to a computer. **HRO Price $256.95**

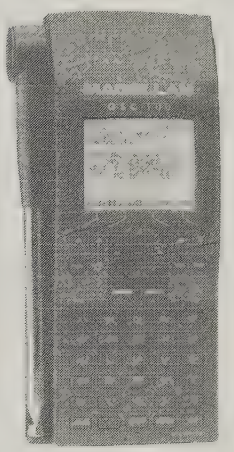
CD-2P Software

The CD-2p DOS-based application stores the time and date of each decoded CTCSS, DCS or DTMF from your CD-2. Accumulated data can be displayed or printed. Graphical displays show channel loading and more. **HRO Price $109.95**

MAGELLAN

Satellite Navigation and Communications

Global Satellite Communicator



Stay in touch no matter where on earth you go. Send and receive e-mail from the most remote places. With its integrated GPS, you can navigate with assurance and relay your position to anyone, anywhere.

With an easy-to-use, menu-driven interface, the GSC-100 allows you to send and receive messages through the ORB-COMM network, a wireless, two-way satellite system with global coverage. The GSC-100 communicates with the satellites on a standard narrow-band VHF frequency. Your e-mail is routed through a Gateway Station and on to its final destination via traditional methods.* Create, edit, forward, and store up to 100 text messages. The address book takes up to 150 entries.

GSC-100
$1199.95
HRO Discount Price

The integrated global positioning system helps you identify your position, plot and track your course, or store 200 waypoints. Store five reversible routes of 15 legs. Features six graphic navigation displays.

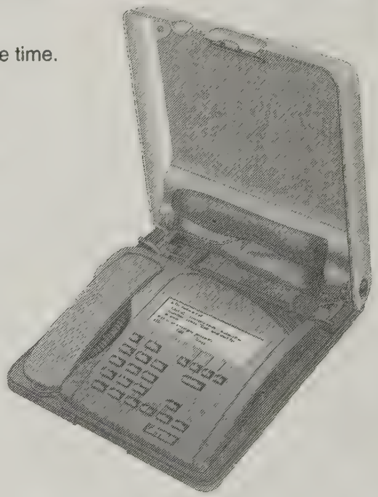
Rechargeable NiCad battery pack included as well as an AC adapter for 10-35 VDC. Includes ORBCOMM telescoping and GPS internal patch antennas.

*Additional cost for satellite time. Call for more information.

World Phone

Satellite Telephone
$2899.95

Marine Version
$6999.95
HRO Prices



Magellan now offers two satellite telephone products based upon the revolutionary mini-M service from Inmar-sat. Advanced Mini-M technology allows the size, weight, and cost of the phones to be significantly reduced. The phones provide global voice, fax, and data communications with airtime charges of just $2.99 per minute.

The mini-M phone includes the phone, internal battery, waterproof remotable antenna, and AC converter/charger. The phone is fully capable of voice, fax, and data communications without any additional costs or upgrades.

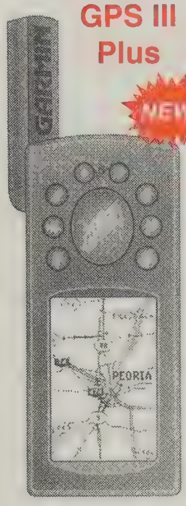
The Marine Version is a compact unit that mounts easily in a boat's cabin and includes the topside-mounted auto-tracking antenna.

GARMIN

Garmin's Personal Navigator GPS receivers are low-cost and full-featured. This family of satellite navigation equipment can guide you anywhere.

GPS III Plus

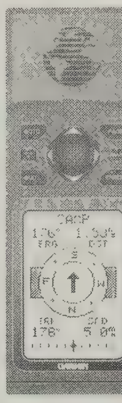
NEW!



The GPS III Plus improves upon the detailed base-map that made the GPS III so popular. It adds enhanced cartographic capabilities formerly found only in high-end automotive navigation and marine chart plotting units. This base-map contains more than 10,000 additional towns, airport locations and secondary roads within metro areas. It has an extensive, detailed database of exit information for the federal interstate system. Plug the III Plus into a PC to download data from Garmin's optional line of MapSource™ CD-Roms.

- 12 parallel channel receiver, differentially ready.
- 10 year lithium battery back-up.
- 24 hour battery life using 4 AA alkalines.
- Position Averaging.
- 500 user waypoints.

HRO Price: $367.95



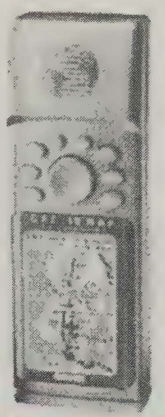
GPS 12 CX

NEW!

This fast, accurate 12-channel GPS with color LCD is for boaters, hunters and hikers who use a GPS in the most challenging environments.

- PhaseTrac 12 parallel channel receiver provides fast position fixes in tough conditions like tall buildings or trees.
- Rugged, compact case meets military 810(e) specification.
- External antenna.
- Internal beeper alarm.
- 500 user waypoints with alphanumeric name & comments.
- 20 reversible routes of up to 30 waypoints each.
- TracBack navigation turns your track log into a route home.
- 9 proximity alarms.
- Over 1000 track log points, position averaging, emergency erase, and cloning.
- Up to 12 hours life with four AA batteries.

HRO Price: $299.95



GPS 12 Map

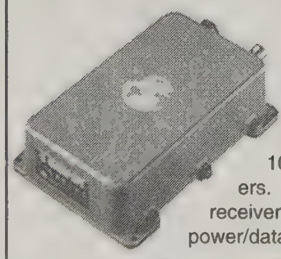
NEW!

This model combines the enhanced software features of the popular GPS III Plus with the rugged design of the GPS 12.

The basemap includes information for North and South America including cities, interstates, lakes, rivers, railroads, coastlines, and exit information for the interstate highway system. Add more mapping information by reading a MapSource™ CD-Roms into your PC and downloading into the GPS.

The 12 Map has 12 parallel channels and the same rugged physical characteristics as the 12 CX (excluding color display). It has waterproof case, dedicated zoom keys for quick map scaling, and a high-resolution LCD display with backlighting. It gets up to 36 hours of battery life with four AA batteries.

HRO Price: $399.95



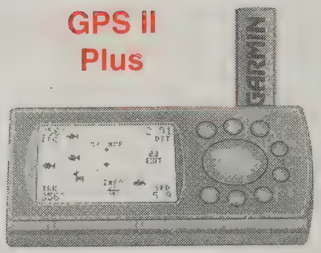
GBR 21

For Higher Accuracy Applications

(requires Garmin GPS)

The Differential GPS Beacon Receiver provides 5-10 meters accuracy for compatible Garmin GPS receivers. The standard configuration includes the GBR 21 receiver, whip antenna, 30 ft. cable and antenna coupler, power/data cable, and user's manual. **HRO Price: $299.95**

GPS II Plus



View the GPS-II screen vertically or horizontally. It has an external antenna to improve reception, zoom keys, diagonal paning, auto start/stop trip timer, average and maximum speed recordings.

- MultiTrac8™ continuously tracks and uses up to 8 satellites.
- EZinit feature for fast initialization.
- Dedicated keys for zooming from 0.2 to 360 miles.
- Rocker keypad, backlit LCD display, moving map plotting.
- User selectable navigation screens for compass or graphic highway guidance.

HRO Price: $199.95

NEW!

MapSource™

These accessory CD-Roms augment the basemap in several Garmin GPS units: GPS III Plus, NavTalk, StreetPilot, eMap, and GPS 12 Map. Data included are highways, roads, hiking trails, snowmobile trails, elevation contours, point elevation, geographic names, summits, churches and schools. Selectively load the maps for just the areas you need.

- **US Roads and Recreation** for detailed coverage of the US including nautical navigation aids.
- **WorldMap** for general coverage of the world.
- **US Topo** for terrain contour and elevation detail of the US including Alaska and Hawaii.
- **MetroGuide USA** for Metro Guide in CD-Rom format.

You can browse these color maps on your PC using the zoom and pan functions.

Requires Windows 95, 98 or NT 4.0; 16MB-RAM; 10MB free hard disk storage; CD-Rom drive; 256 color display; mouse.

NavTalk™

NEW!

Garmin's NavTalk™ is the ultimate in outdoor survival gear: a combination analog cellphone and GPS receiver.

The NavTalk phone has touch-tone location reporting (including the ability to send your exact position and have it displayed on another unit), numeric paging, an electronic "phone book" capable of 100 entries, and intelligent security lock capability. The phone has one-touch dialing and a message center to collect missed calls and pager messages.

NavTalk's GPS shows exactly where you're calling from on a high-resolution backlit display. It is the same 12 parallel channel receiver used in the GPS III Plus. It comes with an extensive internal database including cities, plus millions of miles of roads and highways across the entire US, Canada, and South America.

Optional added feature: Sign up for FirstAssist™ one-touch emergency service. Then, with the push of the red "9" button, your location is transmitted and you're automatically connected to a response center which will send help to your location.

HRO Price: $499.95

NEW!

StreetPilot

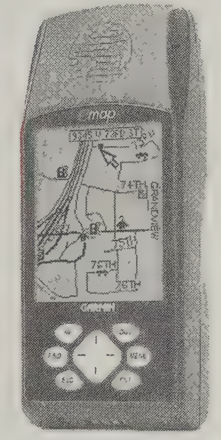
Color Version now available

The StreetPilot GPS combines satellite tracking technology with detailed electronic maps. StreetPilot contains a world reference map and shows Interstate, US, and state highways plus rivers and lakes in the US, Canada, and Mexico. Commonly-used streets are shown in metro areas. Plug in an optional data card and enjoy street-level map detail. (Call HRO about available cities.) Enter an address and the unit will find it on the map. Also shows a long list of hotels, restaurants, shops and other points of interest.

HRO Price $499.99 Color Version $699.95

NEW!

eMap



This pocket-sized six-ounce GPS boasts an extra-large display that shows even more map data than you've come to expect from Garmin. The 12 parallel channel GPS receiver operates for up to 14 hours on just two AA batteries.

The eMap features an internal basemap containing information on North and South America including state and country boundaries, lakes, rivers, streams, airports, cities, towns, coastlines, and US, state, and interstate highways. In addition, eMap provides exit information for interstate highways. With eMap, you will know when you are near services such as food, lodging, and service stations.

EMap is compatible with Garmin's line of downloadable MapSource CD-Roms including US Roads and Recreation, WorldMap, US Topo, and MetroGuide USA. When paired with MetroGuide, eMap has can look up address and telephone number information for nearby services and points of interest. EMap stores eight or 16 megabytes of downloaded CD-Rom information at a time depending on the size of the cartridge you use in the unit.

HRO Price $299.95

Garmin Accessories

Part Number	Description	Street Pilot	GPS 12CX	GPS II Plus	GPS III	Nav Talk	GPS III Plus	HRO Price
Antennas, etc								
010-10052-00	GA 28 Low Profile remote marine antenna with 30' cable / BNC	*			*			$129.95
010-10052-02	GA 26 Low Profile antenna, mag. & suction mounts, 8' cable, BNC	*		*	*			$99.95
010-10061-00	GA 26 Trunk Mount	*		*	*			$17.95
010-10062-00	GA 26 Flange Mount	*		*	*			$17.95
010-10067-00	GA 28 Flange Mount Kit	*						$20.95
010-10139-00	GA 26 Suction Cup Mount	*		*	*			$17.95
010-10152-00	GA26 8 ft extension cable	*		*	*			$38.95
011-00237-00	Handheld / portable Antenna	*		*	*			$93.95
013-00002-00	30 ft low-loss antenna extension cable with connectors for GA 28	*						$107.95
Bracket Mounts								
010-10048-00	Swivel Mount Bracket		*					$31.95
010-10111-00	Dash Mount Bracket			*	*			$31.95
010-10115-00	Bicycle Mount Kit		*					$17.95
010-10122-00	Bicycle Mount Kit			*	*			$25.95
010-10199-01	Bean Bag Mount (No installation required)	*						$19.95
010-10199-02	Dashboard mount base only	*						$17.95
Cables, Etc								
010-10082-00	Power/Data Cable	*		*	*			$27.95
010-10084-00	Cigarette Lighter Adapter		*					$39.95
010-10085-00	Cigarette Lighter Adapter	*		*	*			$23.95
010-10086-00	Data Cable		*					$22.95
010-10141-00	PC Interface Cable	*	*	*	*			$38.95
010-10142-00	Data transfer cable (unit/unit)	*	*	*	*			$46.95
010-10164-00	PC Interface Cable w/8v cigarette lighter adapter		*					$50.95
010-10165-00	PC Interface Cable w/cigarette lighter adapter	*		*	*			$45.95
Cases								
010-10199-03	Carring Case w/storage for cartridges (Street Pilot only)	*						$24.95
010-10232-00	Carring Case w/storage for cartridges (Color Map only)	*						$24.95
010-10220-00	Leather carrying case w/view window					*		$24.99
010-10221-00	Soft Holster					*		$19.99
Other								
010-10054-00	PC Software and Cable Kit	*	*	*	*			$92.95
010-10227-00	Blank 8MB Mem Cartridge	*						$99.99
010-10226-00	Blank 16MB Mem Cartridge	*						$149.99
Map Source CD-ROMs								
010-10215-00	US Roads & Recreational					*	*	$99.99
010-10215-01	MapSource World Map					*	*	$89.95
010-10215-02	Map Source US Topo					*	*	$119.99
010-10215-13	MapSource US Metro w/ 8MB mem cart					*	*	$199.99
010-10215-03	MapSource US Metro	*						$149.99

Internet On-line Ordering 24 Hours a Day
http://www.hamradio.com

uniden®

SCANNERS

Scanner

BC-3000XLT
Handheld

$379.95
HRO Price

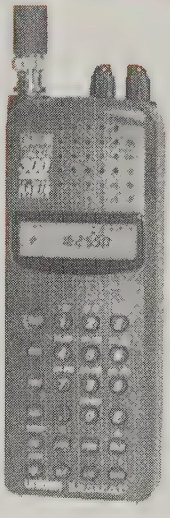
The 3000XLT has 400 channels with continuous band coverage. It covers 25 to 550 MHz and 760 to 1300 MHz (except cellular bands). It has Turbo Scan and Search; 10 priority channels; AM, NFM and WFM modes; selectable attenuator, data skip, automatic store and sorting; flexible antenna; and rechargeable battery.

Trunk Tracker

NEW!

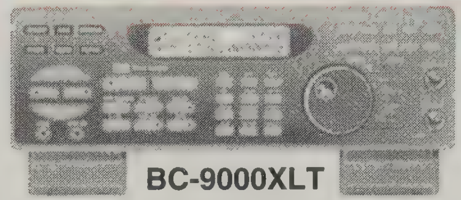
BC-245XLT
Handheld

$199.95
HRO Price



This fully programmable 800 MHz trunk-tracking hand-held scanner has 300 channels (10 priority) to program, 12 bands in 10 banks including aircraft and 800 MHz (cellular frequencies blocked). Pre-programmed service search allow you to toggle through police, fire, emergency, aircraft, marine and weather frequencies. Trunk scan and scan lists search for activity on one trunk or create lists of multiple groups to scan (e.g., fire or police). Trunk search monitors all groups within a trunked system. The LCD display shows the channels being scanned and the frequency for each. Includes two rechargeable NiCad battery packs and CRX120 battery charger.

Base Unit Scanner

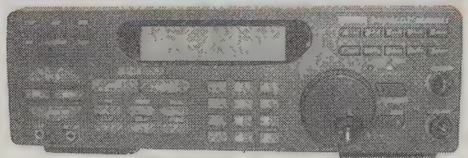


BC-9000XLT

$349.95 – HRO Price

The 9000XLT provides 500 channels with continuous band coverage. It receives 25 to 550 MHz and 760 to 1300 MHz (except cellular bands). It has Turbo Scan and Search; 10 priority channels; AM, NFM and WFM modes; selectable attenuator, data skip, automatic store and sorting; automatic control tape ON/OFF, and tape output.

Trunk Tracker



BC-895XLT
Mobile / Base

$229.95 – HRO Price

The BC-895XLT is the industry's first trunk tracking base scanner. Search and monitor all the groups within a trunked system. Has 300 channels and includes 12 bands with aircraft, weather, and built-in CTCSS. Includes an RS232 port for computer control.

Handheld Scanners

SONY

ICF-SC1	ICF-SC1PC
$229.95	**$349.95**
HRO Price	HRO Price

Sony's scanner covers all frequencies allowed by the FCC between 35 MHz and 1,300 MHz (cellular band blocked). This includes 9 bands: police, aircraft, fire/emergency, weather, marine, FM and TV frequencies. AM/Narrow and FM/Wide reception is provided. There are 300 memories for storing your favorite frequencies.

The ICF-SC1PC has a bi-directional PC interface with search and control capabilities. It includes a CD-ROM which lists all frequencies in the U.S. Use this CD-ROM with the PC interface to search and create files by a variety of search modes.

Scanner Software

WinScan®

NEW!

Scanner Control Software for the Uniden BC245xlt and BC895xlt

You can now control either the Uniden BC245xlt or BC895xlt with one easy software package.

- Auto detects which scanner is connected to your PC.
- Simple interface. Looks and works like the front of the scanner. (Manual control not implemented.)
- Build customized scan lists.
- Add Alpha tagging to the frequencies you listen to. (Tags appear only on PC not on the scanner.)
- Upload your scanner's memory to a database in the PC.
- Create APF files to share your scanner information with others.
- Scan in conventional and trunking mode simultaneously on your 895.
- Program EDACS and Mototola talkgroups and frequencies on your 245.
- Create different scan lists for multiple states and cities.
- Has Speed EnhancerT™ scan mode for the 245 multi-scan feature.

HRO Price: $59.95

SPS 1.0

NEW!

Scanner Programming System for the Uniden BC-245XLT and BC-895XLT

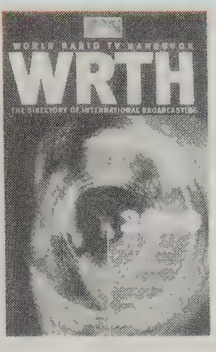
The SPS contains suggested scanner programming information, including TrunkTracker talkgroups, for more than 40 of the largest metro areas in the United States. In seconds, SPS will automatically program your BC-245XLT or BX-895XLT scanner for use in any included city (programming cable not included).

For programming and control purposes, the SPS includes a Limited Special Edition copy of WinScan scanner utility for PC. This copy of WinScan is fully functional for 15 days. After the 15-day Limited evaluation period, you may continue to program your scanner as often as neccessary using the included data files for metro areas, however additional features in WinScan beyond programming of your scanner will be disabled until a registered copy is purchased. If you don't own a BC245 or BC895, SPS will print a suggested scanner programming worksheet, complete with the frequencies and talkgroups needed to program your scanner by hand for any of the included cities.

HRO Price: $24.95

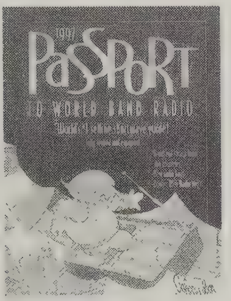
BOOKS

Shortwave Books



World Radio TV Handbook

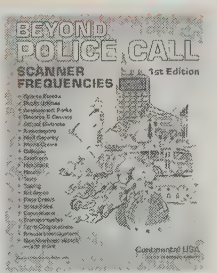
Complete source-book for 1000+ English broadcasts. Stations listed by country and frequency. Pages of advice, tips, Internet addresses. 2000 edition. **HRO Price: $24.95**



Passport to World Band Radio

News and shows from 160 countries. Reviews and advice on how to get started listening to international radio. 2000 edition. **HRO Price: $19.95**

Scanner Books



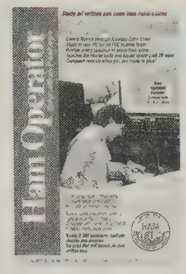
Beyond Police Call

Scanner frequencies for all those other uses: sports events, amusement parks, newspapers, mall security, movie crews, hospitals, taxis, conventions, farm cooperatives, private investigators, public utilities, hotels, and much more. **HRO Price: $9.95**

Call HRO for more scanner books.

SOFTWARE STUDY AIDS

License Studies & Morse Code



W5YI

Ham Operator Education Software

Use your PC to study and review No-Code through Extra Class License material. The package includes nine diskettes covering all theory and Morse code for all Ham licenses. Includes both 3.5" and 5.25" diskettes. Requires 256K and DOS 2.11 or later. **HRO Price $39.95**

General Radiotelephone Operator

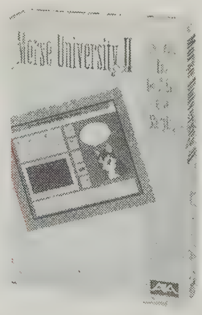
Pass your GROL fast with computer aided instruction. Complete with 495 page fully illustrated manual. Take sample tests right at your PC, or print them out. Requires 3.5" drive, 256K and DOS 3.2 or better. For IBM PCs or compatibles. **HRO Price $59.95**

AMECO

Exam Preparation Software

Learning software is available for PC compatible computers. Instructional packages are available for all licence classes, Novice through Extra. Prepare for the written exams using your own computer. All possible exam questions are covered word for word as they will appear on the actual exam.

The software includes: user-friendly interface, mouse support, colorful graphs, all required schematic diagrams, and full time on-line help. The software quizzes you on every topic and a sample VEC test can be seen on the screen or printed. An Ameco FCC Test Manual is included as part of every Test Package. Call for the HRO Price on the Test Packages.



Timewave Technology, Inc.

Morse University II™

This multimedia Windows product makes Morse Code practice fun. Start by learning the characters, numbers, and punctuation. Raise the speed as your ability increases. Practice copying real-world QSO's using the exercise feature. Use the built-in QSO's or send your own text file.

- FCC quizzes focus on your troublesome areas.
- FCC exam section gives you practice tests.
- Great for schools and clubs.
- Pentode™ game improves code speed.
- Requires PC computer (386 or better), Windows 3.1 or Windows 95, 1.44 MB floppy, 2 MB of hard drive space, 4 MB RAM, VGA display, mouse, and sound card for Pentode game. **HRO Price $39.95**

GGTE

Morse Tutor Gold

Eleven menu-driven lessons use a flash card technique to teach Morse code. Set up each session to teach the specific lesson, a random character drill, or a random word drill using only those characters already learned. The last lesson is a random QSO generator based on a large information pool. This lesson is similar to code exams. The program does standard or Farnsworth CW spacing. You may enter your own text from the keyboard or import ASCII files. A character tally is also shown.

More than 20,000 copies of GGTE Morse Code teaching software have sold since 1987. "Of the code programs I've tried, my first choice is Morse Tutor Gold from GGTE. The method used to teach the code and the variety of practice modes provided are very impressive." *Art Sadler, KC7IG in "Coping With the Code,"* ***World Radio***.

Requires: Any PC from 8088 thru Pentium. Sound Blaster compatible. Non-Sound-Blaster cards must have an FM systhesizer chip. Comes on 3.5" or 5.25" disks. **HRO Price $29.95**

Theory Tutor for Tech+

This Windows program covers all questions for Novice and Tech exams through June, 2000. Master the theory quickly in small, easy-to-understand modules presented in Help screen format. Quizzes parallel the theory and include many setup and scoring options. Print or view your history of success. Examinations can be taken on-screen or printed (with answer key). Exams obey the rules for constructing VE exams.

Everyone in your house can use the program and maintain his own record. View progress graphically. Use the bookmark to jump to your last lesson, or the notepad to keep reminders. Pop-up hints and extensive Help screens are always ready to assist. Free technical assistance is available as long as you own the program.

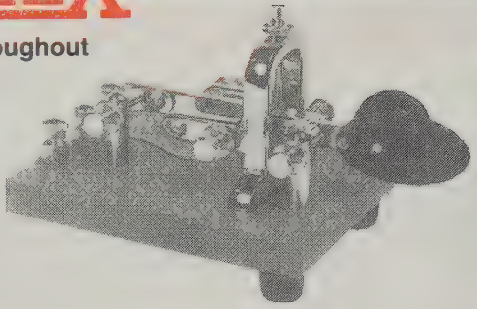
Requires 386 or better, 450 KB RAM, 11 MB free hard disk space plus approximately 50 KB per user, Windows 3.1 or later. **HRO Price $39.95**

Details at http://www.ggte.com

VIBROPLEX®

Quality and Pride Throughout

"Vibrokeyer"



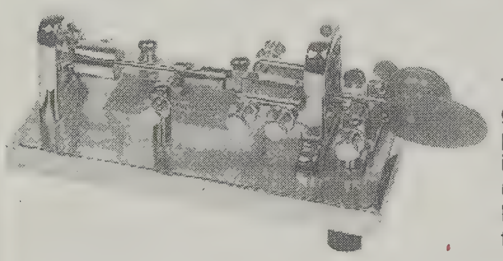
The Vibrokeyer is designed for those who prefer a non-iambic paddle. The single lever paddle imitates the automatic dots and dashes of the electronic keyer with the same motion used to operate the "Bug".

Vibrokeyer Gold: The entire base is 24K gold plated with bright decorative chrome top parts. Smooth, jeweled movements for precision control. Stainless steel hardware where appropriate. **HRO Price $269.95**

Vibrokeyer Deluxe: Highly polished decorative chrome base with bright chrome top parts. Silky smooth movements are jeweled as in fine Swiss watches. **HRO Price $159.95**

Vibrokeyer Standard: A neat, crisp black textured finish base with bright decorative chrome parts. Non-jeweled movement. **HRO Price $119.95**

"Original"



The *Original Vibroplex*, is a genuine piece of history. First patented in 1894, the Original is still manufactured today using tools and dies very similar to those used by its inventor, Horace G. Martin. Modern-day operators can put their fist to the same equipment as the Western Union and railroad operators of old.

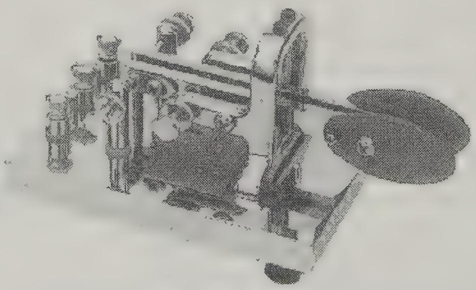
Original Gold: The entire base is 24K gold plated, with bright decorative chrome top parts. Smooth, jeweled movements for precise control. Stainless steel hardware where appropriate. **HRO Price $299.95**

Original Presentation: 24K gold plated brass plate on a highly polished decorative chrome base with bright chrome top parts. **HRO Price $249.95**

Original Deluxe: Same as the Presentation but without the 24K gold plated brass plate. **HRO Price $179.95**

Original Standard: A neat, crisp black textured finish base with bright decorative chrome top parts. **HRO Price $139.95**

"Iambic"



This is the modern descendent of the Original. It incorporates the traditional Vibroplex look for use with modern electronic keyers.

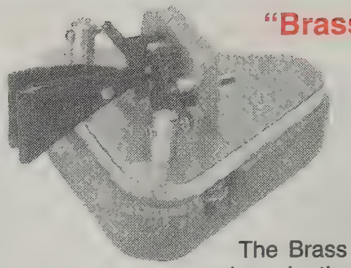
Iambic Gold: The entire base is 24K gold plated with decorative chrome top parts. Smooth, jeweled movements for premium control. Stainless steel hardware where appropriate.
HRO Price $269.95

Iambic Presentation: 24K gold plated brass plate on a highly polished decorative chrome base with bright chrome top parts. Its silky smooth jeweled movements are like those found in fine Swiss watches. **HRO Price $239.95**

Iambic Deluxe: Same as Presentation but without the 24K gold plated brass plate. **HRO Price $159.95**

Iambic Standard: A neat, crisp black textured finish base with bright decorative chrome top parts. **HRO Price $119.95**

"Brass Racer"

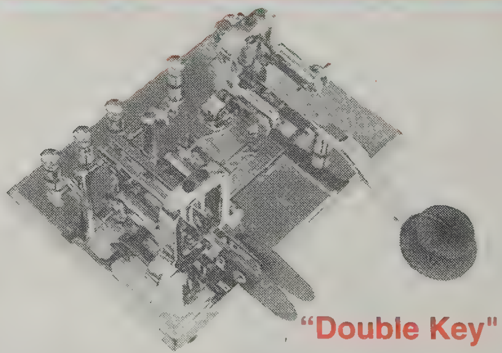


The Brass Racer keys are unique in that there are NO springs in the design. They are crafted from solid brass and mounted on a base of polished hardwood. Tension on the paddle is infinitely adjustable by the use of magnets.

Brass Racer Iambic: This iambic paddle is designed for use with an external keyer or the keyer in your radio. The Triangle Brass base is mounted on polished hardwood. **HRO Price $89.95**

Square Brass Racer: This key is a departure from our traditional style. A distinctive design of brushed lacquered SQUARE brass mounted on polished hardwood. **HRO Price $124.95**

Combination



"Double Key"

By popular request, Vibroplex has combined its Straight Key with the classic Vibrokeyer or Iambic paddle on one massive steel base. The Double Key allows the operator to instantly switch from an electronic keyer to the personal touch of a straight key.

Gold Double Key: The entire base is 24K gold plated with bright decorative chrome top parts. Stainless steel hardware where required. **HRO Price $379.95**

Double Key Deluxe: Highly polished chrome base with decorative chrome top parts. **HRO Price $339.95**

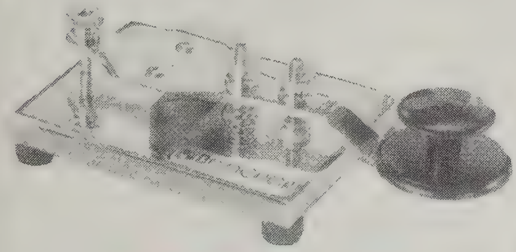
Double Key Standard: A neat, crisp, black-textured finish base with bright chrome top parts. **HRO Price $289.95**

BENCHER, INC.

BY Series Iambic Paddles

You will enjoy the smooth, precise action of a Bencher paddle with any iambic keyer. These paddles feature a heavy steel base, gold plated silver contact points, non-skid feet, stainless steel adjustable spring, self-adjusting needle bearings, and large acrylic finger paddles.

HRO Prices:	**BY-1**	**Black**	**$99.95**
	BY-2	**Chrome**	**$109.95**
	BY-3	**Gold**	**$299.95**
	BY-4	**Gold/Blk**	**$159.95**



RJ Series Hand Keys

The "RJ" hand keys have an advanced American-style design derived from the telegraph keys that won the west, yet with modern features like Oilite bearings, a solid navy knob, gold-plated solid silver contacts, full locking adjustments of all tension and spacing parameters, and Bencher quality materials throughout.

These keys are ideal for the new amateur just mastering code as well as the old time brass pounder anxious to "clear the hook." This key offers the Morse code operator an investment that will bring years of pride and satisfaction. Try the Bencher "RJ" hand key at your nearby HRO. You will be convinced there is no better key available.

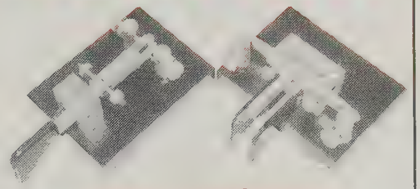
HRO Prices:	**RJ-1**	**Black**	**$95.95**
	RJ-2	**Chrome**	**$99.95**

ST Series Single Lever Paddles

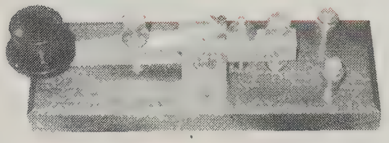
Superb Bencher features and construction for the ham who prefers single lever operation.

HRO Prices:	**ST-1**	**Black**	**$99.95**
	ST-2	**Chrome**	**$109.95**

ALPHA DELTA



Kent Paddles

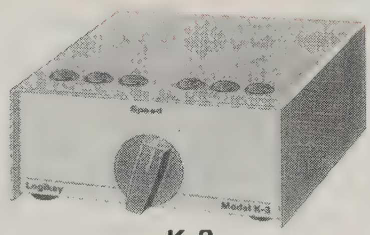


Kent Straight Key

These paddles offer a smooth feel with sealed ball bearings. Precise gap adjustments with knurled heads on fine pitched screws and locking nuts. Made from solid brass within a permanent brass housing.

Twin Paddle	(TP-1)	$149.95
Single Paddle	(SP-1)	$139.95
Straight Key	(SK-1)	$129.95

LOGIKEY



K-3
Iambic Memory Keyer

Features six editable messages with 1530 characters total. Messages can include programmed functions. Auto-insertable contest serial number, speed control range 5-60 WPM, adjustable weighting, adjustable frequency monitor, tune function for X-meter adjustment, automatic character spacing, allows for paddle inserted text and more! **HRO Price $119.95**

For more information, see our web site at www.qth.com/ldiom

On-line Ordering
http://
www.hamradio.com

Straight Keys

NyeViking

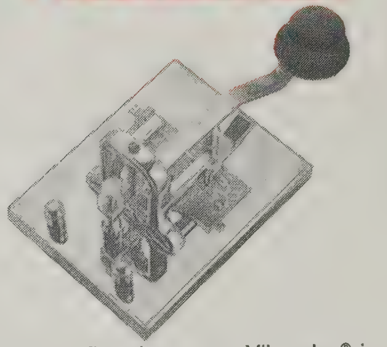
Master Key 330-001

The perfect straight key comes with cord and plug. Isolated contact assembly separates keying circuit from hardware. Includes gold-plated silver contacts, adjustable key arm, Navy knob, and heavy die-cast base. **HRO Price $72.95**

Straight Keys

Keys with gold-plated heavy silver contacts, adjustable key action, and heavy die-cast bases. Brass or nickel-plated hardware, standard or Navy knobs.

VIBROPLEX®



For the first time ever, Vibroplex® is offering a STRAIGHT key. It has unique mechanical action, unlike any straight key that has ever been manufactured,

Straight Key Gold: The entire base is 24K gold plated with bright decorative chrome top parts. Stainless steel hardware where appropriate. **HRO Price $289.95**
Straight Key Deluxe: Highly polished chrome base with decorative chrome top parts. **HRO Price $169.95**
Straight Key Standard: A neat, crisp black textured finish base with bright chrome top parts. **HRO Price $129.95**

MIKES / HEADSETS / SPEAKER

NEW!

HEIL SOUND

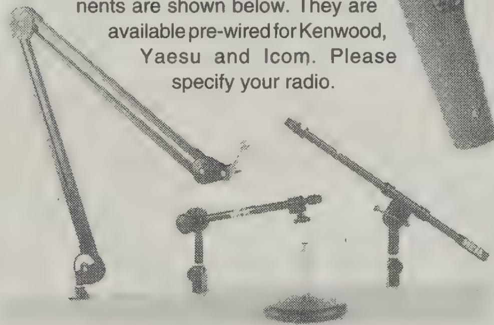
Goldline

The Goldline series is a full-range, dual element studio microphone specifically designed for full range, smooth articulate SSB audio with a wide audio response. It is also great for AM and FM transmissions. It features a 60Hz to 16kHz frequency range coupled with a 6dB midrange peak @ 2kHz. The microphone comes with the new full-range element plus your choice of either the HC-4 or HC-5 Key Element. You can switch between the full-range element and the HC element with a selector switch next to the PTT button.

GM-4 GOLDLINE with HC-4 $129.95
GM-5 GOLDLINE with HC-5 $129.95

HM-10 Series

By selecting the correct hardware, you can design the EXACT audio set up you need for your station. With Heil hardware you can clamp it, screw it, bolt it, or hold the **HM-10.** The components are shown below. They are available pre-wired for Kenwood, Yaesu and Icom. Please specify your radio.



Model	Description	HRO Price
HM-10 (4)	Mike with case and HC-4 element	$85.95
HM-10 (5)	Mike with case and HC-5 element	$85.95
HM-10 Dual	Mike with HC-4 & HC-5	$131.95
MA-1	Adjustable boom	$64.95
FS-1	Foot switch	$29.95
TB-1	Table base mount	$24.95

Replacement Mike Elements

HC-4 / HC-5

The **HC-4** is for serious DX and contest operators. With a 10 dB peak at 2,000 Hz and the low rolled off sharply at 500 Hz, this is best for getting through the pile ups. **HRO Price $29.95**

The **HC-5** has higher fidelity and is the recommended element for the Icom SM-5/6. The output level matches that required for the Kenwood and Yaesu HF radios. **HRO Price $29.95**

Pro Headsets

Heil's headsets for the amateur provide comfort and performance. Available for use with Icom, Kenwood and Yaesu. Contact HRO for specifications. Connecting cables optional for Icom, Kenwood and Yaesu.

Pro Set The first in the Pro-Series Boom Headsets, the Pro Set provides superior comfort and quality. **HRO Price $124.95**

Pro Micro Heil's newest addition to the Pro Series is the Pro Micro. It's virtually a miniature version of the Pro Set. Created for long-term comfort and superior performance, it doesn't cover the entire ear like the Pro Set–a feature requested by some Hams. **HRO Price $99.95**

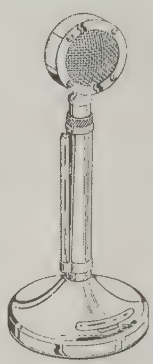
Pro 5 The Pro 5 is a single side version of the Pro Set. Some have requested a single side Boom Set so they can keep one ear open for room sounds or multiple transceiver monitoring. **HRO Price $109.95**

Microphone Pre-Amp for Icom (HMP)

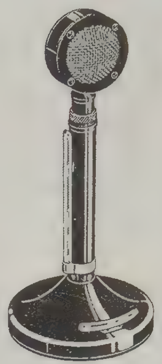
Improve the response curves and gain for Icom radios with Heil mike elements. (ICOM modular version maybe incompatible for VOX on IC-706MKII) **HRO Price $54.99**

ASTATIC

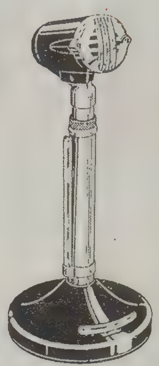
Desk Microphones



D-104
$99.95



D-104 Black
$99.95



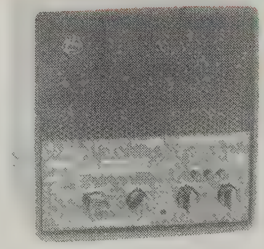
10DA
$99.95

HRO Prices

The **D-104** is brightly chrome plated and polished to a mirror finish. The **D-104 Black** is finished in black with polished, bright brass-plated trim. Both models are solidly constructed of brass and die cast zinc and feature an American Eagle embossed on the back of the D-104 head. The semi-directional D-104 uses a metal sealed crystal, combined with an extra large diaphragm that gives it the distinctive sound that has been an industry standard for years. Frequency response: 200 Hz - 20 KHz. Impedance: 5000 ohms max.

The 10DA is a dynamic microphone especially designed for SSB. This chrome and black microphone is capable of up to a 90º tilt with adjustable tension. Frequency response: 300 - 3000 Hz. Impedance: 40 K ohms.

Speaker



ALPHA DELTA

Variable Response Console

Model VRC

The VRC tuner-port speaker has a built-in audio equalizer plus peak and notch filters to improve radio audio response. It has a 4-inch speaker, a tuned baffle, and is constructed of heavy cast aluminum. A VRC-2 is available with the tuner port speaker and no electronics. With 13.8 VDC powering the VRC, you get up to 5 watts output.

HRO Prices:			
	VRC	5 watt	$229.95
	VRC-2	Passive	$99.95

MICROPHONES

ADONIS USA
A DIVISION OF RF LIMITED

Professional Desktop and Mobile Microphones

Adonis desk microphones feature high sensitivity electret elements, low noise audio amplifiers with variable outputs, FM mode for full range audio and voice clarity, and SSB mode with a more narrow audio range for optimum DX'ing signal strength.

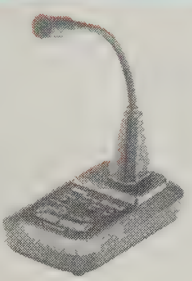
All microphones are beautifully constructed of anodized aluminum cabinets, flexible metal goosenecks, and electronic tactile PTTs that switch your transceivers and amplifiers quietly and smoothly without the harsh mechanical switching of many microphones.

Use Adonis Adapter Cables with all Adonis microphones to quickly connect to almost any transceiver. Have more than one transceiver? Don't buy another microphone! Just get another Adonis Adapter Cable and easily switch your Adonis microphone from radio to radio.

Base Microphones

AM-308

HRO Price $99.95



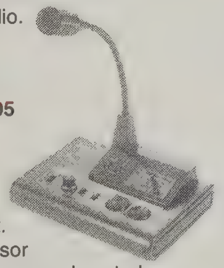
AM-308 Features
- High sensitivity electret mike element.
- FM / SSB mode switch.
- Output volume control.
- Momentary and locking PTT switches.
- Up and down frequency controls.
- On-air indicator LED.

Specifications
Output voltage: 0 - 30 mV RMS
Output impedance: 500 - 100 K ohms
Power requirement: 3 volt DC (AA batteries)
Current consumption: 1.5 mA (RX) / 2.5 mA (TX)

Optional Accessories
Model PS-3: External DC power supply adapter for battery-free operation.
Model OF-5: Foot pedal switch for hands-free transmitting.
Model KC-5: Variable, two-octave key changer for increased tailoring of TX audio.

AM-708E

HRO Price $199.95

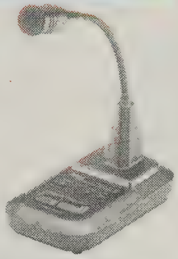


AM-708E Features
- High sensitivity electret mike element.
- Three stage compressor amplifier with variable manual control.
- Two-transceiver control with output selector switch.
- FM / SSB mode switch.
- Large VU meter.
- Momentary and locking PTT switches.
- Up and down frequency controls.
- On-air indicator LED.
- Battery check circuit.
- TX warning circuit with automatic shut-off.

Specifications
Output voltage: 0 - 30 mV RMS (compressor)
0 - 70 mV RMS (manual)
Matching impedance: 500 - 100 K ohms
Power requirement: 3 volt DC (AA batteries)
Current consumption: 3 mA (RX) 6 mA (TX)
Compressor level: 45 dB (high) 35 dB (low)

AM-508E

HRO Price $119.95



AM-508E Features
- On-air indicator LED.
- FM / SSB mode switch.
- Output volume control.
- High sensitivity electret mike element.
- Two-stage compressor amplifier.
- Momentary and locking PTT switches.
- Up and down frequency controls.

Specifications
Output voltage: 0 - 30 mV RMS
Output impedance: 500 - 100 K ohms
Compressor levels: 45 dB (high) 10 dB (low)
Power requirement: 3 volt DC (AA batteries)
Current consumption: 2 mA (RX) 3 mA (TX)

AM-7500E

HRO Price $249.95

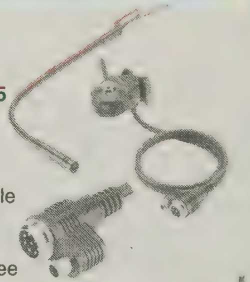
AM-7500E Features
- High sensitivity electret mike element.
- Large VU meter.
- Three stage compressor amplifier.
- Four-band graphic equalizer – 270 Hz, 540 Hz, 1 kHz, 2 kHz.
- Rotary output volume control.
- Momentary and locking PTT switches.
- Up and down frequency controls.
- On-air indicator LED.
- Battery check circuit.
- TX warning circuit with automatic shut-off.

Specifications
Output voltage: 0 - 30 mV RMS
Matching impedance: 500 - 100 K ohms
Power requirement: 6 volt DC (AA batteries)
Current consumption: 3.5 mA (RX, equalizer off)
4.5 mA (TX, equalizer off)
10 mA (RX, equalizer on)
11 mA (TX, equalizer on)
Compressor level: 45 dB (high)
30 dB (med), 10 dB (low)
S / N Ratio (equalizer): 80 dB
Distortion (equalizer): 0.05 % (at flat)
Graphic Equalizer: +12 dB range

Mobile Microphones

FX-5

HRO Price $109.95

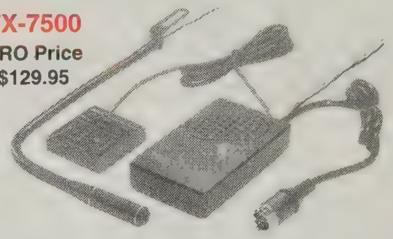


FX-5 Features
- Integrates a mobile radio's controls with a vehicle.
- Virtually hands-free transceiver operation increases safety!
- Uni-directional, electret mike element for improved noise canceling characteristics.
- Flexible boom microphone attaches to vehicle sun visor.
- Flexible boom microphone extends 12 inches.
- PTT control box straps to gear shift or other convenient location.
- Control box with PTT switch, up/down frequency buttons, and mike gain control.

Special versions available, with added features, for Kenwood transceivers! Ask your HRO salesperson about the FX-1K and FX-1KM!

FX-7500

HRO Price $129.95



FX-7500 Features
- Integrates a mobile radio's controls with a vehicle .
- Virtually hands-free transceiver operation increases safety!
- Uni-directional, electret mike element for improved noise canceling characteristics.
- Flexible boom microphone attaches to vehicle sun visor.
- Flexible boom microphone extends 12 inches.
- Low profile, PTT control box attaches to center console.
- Control box features both momentary & locking PTT switches and up/down frequency buttons.
- Microphone gain control on power box.

Special versions available, with added features, for Kenwood transceivers! Ask your HRO salesperson about the FX-7500K and FX-7500KM!

MICROPHONES & HEADSETS

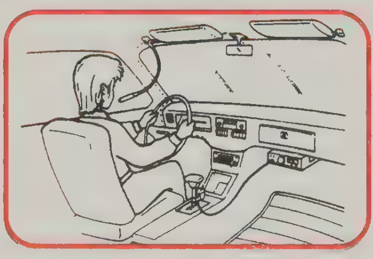
PRYME®

Radio Products

Premier Communications has a Pryme product to meet any portable communication need. They offer small speaker microphones (the SPM-100 series) and full sized mikes (the SPM-600s). Users on the go will appreciate ultra comfortable lapel mikes (SPM-200 and 200E) and the patented over-the-ear boom microphones (SPM-400). For high-noise environments, use a noise resistent throat mike (SPM-500). Users that need "low profile" communications should check out the flesh-colored "palm mike" (SPM-700) which can easily be concealed.

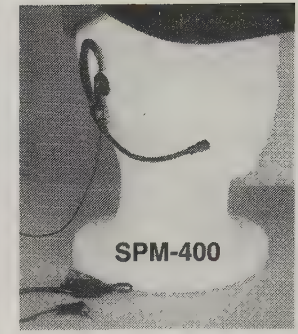
PMC-100
Base Mike

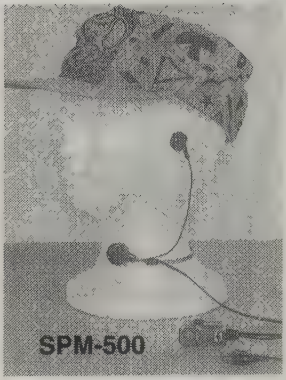
The high performance PMC-100 is compatible with all modern HF and VHF transceivers. Has high quality compressor amp, ceramic condenser mike element, selectable FM or SSB audio shaping selector switch, dual transceiver inputs. Optional cables for specific radios.

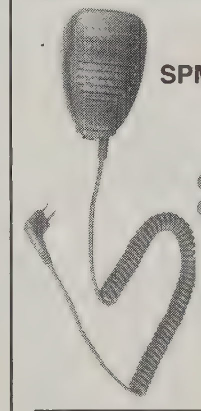


MMC-100
"Sun Visor"
Mike

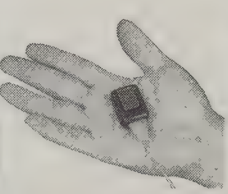
This is a permanently installed mobile mike that makes mobile operations safer. Optional cables for specific radios.



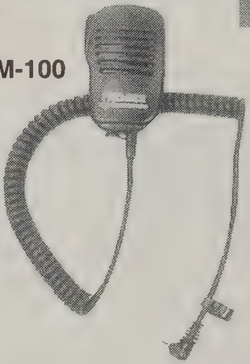




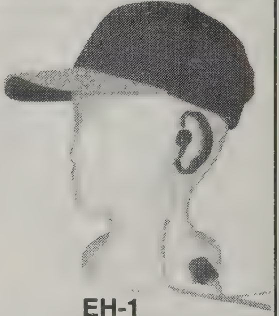
SPM-600



SPM-700
Flesh-Colored
"Palm Mike"



SPM-100



EH-1
Earphone for most HT's

Model	Description	HRO Price
PMC-100*	Base Station Mike	$79.95
MMC-100*	Sun Visor Mike	$79.95
SPM-100	Speaker / mike for ADI, Icom, Standard, Yaesu	$27.95
SPM-101	Speaker / mike for Kenwood	$29.95
SPM-102	Speaker mike for FT-50R / VX-1	$33.95
SPM-103	Speaker mike for Mototola Radius Line	$33.95
SPM-200	Lapel mike and earphone for ADI, Icom, Standard, Yaesu	$13.95
SPM-200E	Lapel mike with ear hook for ADI, Icom, Yaesu, Alinco	$21.95
SPM-201	Lapel mike and earphone for Kenwood	$19.95
SPM-201E	Lapel mike with ear hook for Kenwood	$23.95
SPM-202	Lapel mike with ear bud for FT-50R / VX-1	$20.95
SPM-202E	Lapel mike with ear hook for FT-50R / VX-1	$24.95
SPM-203	Lapel mike with ear bud for Motorola Radius Line	$29.95
SPM-203E	Lapel mike with ear hook for Motorola Radius Line	$34.95
SPM-400	Earpiece/mini boom mike for ADI, Icom, Standard, Yaesu	$25.95
SPM-400PT	Earpiece/mini boom mike w/ PPT cord for ADI, Icom, Standard, Yaesu	$31.95
SPM-401	Earpiece with mini boom mike for Kenwood	$27.95
SPM-401PT	Earpiece with mini boom mike w/ PPT cord for Kenwood	$33.95
SPM-402	Earpiece with mini boom mike w/ PPT cord FT-50R / VX-1	$29.95
SPM-402PT	Earpiece with mini boom mike FT-50R / VX-1	$35.95
SPM-403	Earpiece with mini boom mike w/ PPT cord Motorola Radius Line	$39.95
SPM-403PT	Earpiece with mini boom mike Motorola Radius Line	$35.95
SPM-500	Throat mike and earpiece for ADI, Icom, Standard, Yaesu	$59.95
SPM-501	Throat mike and earpiece for Kenwood	$61.95
SPM-502	Throat mike and earpiece for FT-50R / VX-1	$62.95
SPM-503	Throat mike and earpiece for Motorola Radius Line	$61.95
SPM-600	Large speaker / mike for ADI, Alinco, Icom, Yaesu	$39.95
SPM-601	Large speaker / mike for Kenwood	$39.95
SPM-602	Large speaker / mike for FT-50R /VX-1R	$39.95
SPM-603	Large speaker / mike for Motorola Radius Line	$39.95
SPM-700	Stealth "Palm Mike" for ADI, Icom, Stanadard, Yaesu	$29.50
SPM-701	Stealth "Palm Mike" for Kenwood	$29.50
SPM-702	Stealth "Palm Mike" for FT-50/VX-1R/VX-5R	$31.90
SPM-703	Stealth "Palm Mike" for Motorola Radius Line	$31.90
EH-1	Earphone for most handheld radios	$15.90

* Optional cables required for specific radio - call for information

BOOKSHELF

ARRL TECHNICAL BOOKS

AIM	Antenna Impedance Matching
DB	Data Book
DN	W1FB Design Notebook
FSIR	First Steps in Radio
HK	Hints and Kinks
ITRFD	Intro to Radio Freq. Design
LBD	Low Band DXing
MEM	Microwave Experimenter Manual
OM	Operating Manual
PDOYA	Yagi Design
QRP	QRP Classics
RADIODESIGN	Radio Design IBM Software
RASH	The Radio Amateur's Satellite Handbook
REFLECTIONS	SWR Theory
RFE	RF Exposure and You
RFI	Radio Frequency Interference
RSGB-AWARDS	Awards Book
RSGB-OP MAN	Amateur Radio Operating Manual
RSGB-RCH	Radio Communication Handbook
RSGB-VHF	VHF / UHF Handbook
SA	Satellite Anthology
SEH	Satellite Experimenters Handbook
SSD	Solid State Design
SSS	Spread Spectrum Source Book
TFRB	The FCC Rule Book
TLT	Transmission Line Transformers
TAH	ARRL 2000 Hardcover Handbook
OARS	Operating an Amateur Radio Station
WSH	Weather Satellite Handbook

ARRL LISTINGS

DXCC LIST	Official ARRL DXCC List
LB	Log Book
ND	Net Directory
RD	Repeater Directory

ARRL READING

CQGS	CQ Ghost Ship
DVQTH	Death Valley QTH
DXBD	DX Brings Danger
DXCC Companion	DX Guidebook
FSTS	From Spark to Space
GCQ	Grand Canyon QSO Book
HFNH	Help for New Hams
MBQ	Murder by QRM
MORSE CODE	The Essential Language
NCJ	Bi-Monthly National Contest Magazine
NS	Night Signals
NN	Novice Notes
QRP NOTE	QRP Notebook
QST	Monthly Magazine of ARRL
SOSAM	SOS at Midnight
YVC	Your VHF Companion
FIREWATCH	Firewatch Novel
ET	Easy Target Novel

ARRL PACKET BOOKS

GTPR	Gateway to Packet Radio
PSMSA	Packet Speed, More Speed & Apps

ARRL MAPS

GRID ATLAS	Grid Locator Atlas
GRID MAP	Grid Locator Map
USCAM	U.S. Call Area Map
WM	World Map

ARRL ANTENNA BOOKS

AB	18th Antenna Book
ACVOL5	Antenna Compendium Vol. 5
AN	W1FB Antenna Notebook
NAN	Novice Antenna Notebook
RSGB-ANT	H.F. Antenna Book
RSGB-WIRE	Wire Antennas
YAD	Yagi Antenna Design

ARRL LICENSE PREPRATION

10-15ARRL	10-15 WPM Code Tape
13-14ARRL	13-14 WPM Code Tape
15-22ARRL	15-22 WPM Code Tape
5-10 ARRL	5-10 WPM Code Tape
GENVIDEO/Soft	Gen Class Video / IBM Exam
TECHVIDEO/Soft	Tech Class Video / IBM Exam
NYT III	Study Guide for the No-Code Technician License
LM-TECHNICIAN	Technician Class Manual
TAGCLM	General Class Manual
TAACLM	Advanced Class Manual
TAECLM	Extra Class Manual
TFRB	FCC Rule Book
YITMC	Introduction to Morse Code
TECH Q&A	Technician Q&A Study Guide

Study Aids

AMECO

100-T	Junior Code Tape
101-T	Senior Code Tape
102-01	Amateur Radio Theory Course
103-T	Advanced Code Tape
104-T	Extra Class Code Tape
105-QT	General Class QSO Course Tape
106-QT	Extra Class QSO Course Tape
12-01	General Class Test Manual
17-01	Extra Class Test Manual
26-01	Advanced FCC Test Manual
27-01	Novice FCC Test Manual
28-01	Technician Class Test Manual
EN-1	Novice Class Exam
78-01	Codeless Technician Manual

GORDON WEST / W5YI

GWTM	No Code Technician Manual
GWGM	General Class Study Manual
GWAM	Advanced Study Manual
GWEM	Extra Class Study Manual
NCV	No-Code Video Seminar - Tech
NCVP	No-Code Video Seminar - Tech, manual, rule book
HCV	Gorden West Ham Class Video
GWNT	Novice Code Teacher Tapes
GWGT	General Class Code Refresher Tape
GWET	Extra Class Code Refresher Tape
GWN6	Novice Learing Code Tape
GWG6	General Speed Builder Code Tape
GWE6	Extra/Commercial Code Course Tape
GWNW	Novice Class Theory Tapes
GWTW	Technician Class Theory Tapes
GWGW	General Class Theory Tapes
GWAW	Advanced Class THeory Tapes
GWEW	Extra Class Theory Tapes
TPG	Tech/Tech plus/General Windows Software

KB6MT

CODE	Novice to 21 WPM Code Training Tapes
IT-NCTECH	Instant Theory No Code Tech
IT-TECH	Instant Theory Tech
IT-GEN	Instant Theory General
IT-ADV	Instant Theory Advanced
IT-EXTRA	Instant Theory Extra
WORDS	Code word course

ABTRONIX

ALPHA&ZULU	Ride The Airwys with Alpha & Zulu

Software is sold on a non-returnable basis. Any software problems will be resolved under the terms of the manufacturer's warranty.

CQ Books / Publications

ARC2000	Amateur Radio Calendar 2000
BAUBAU	Building & Using Baluns and Ununs
LMOA	Lew McCoy on Antennas
QUADANTENNAS	Quad Antennas
RCC2000	Radio Classics Calendar 2000
TPROM	The Packet Radio Ops Manual

ARTSCI

AMAT HB	Amateur Handbook
FA	Federal Frequency Book
LUM	Lost Users Manual
NASFG	Shortwave Guide
RTM	Guide to Radio Mods
RA	Radio Atlas
USRG	US Repeater Guide

RADIO PUBLICATIONS

ANTENNA HB	Antenna Handbook
BEAM	Beam Antenna Handbook
INTERFERENCE	Interference Handbook
QUAD	All About Cubical Quads
SHORTWAVE	Better Shortwave Reception
VERTICAL	All About Vertical Antennas
VHF	All About VHF Amateur Radio
WIRE	Low-Cost Wire Antennas
COMPLETE DX	Complete DX'er by W9KNI

Amateur Directories

CALLBOOK

RAC-CD	National and International Callbook CD-ROM–See page 50

QRZ! Ham Radio CD-ROM

QRZ! Ham Radio's CR-ROM for DOS and Windows is the perfect information source for Hams and SW listeners. For details see page 50.

Magazines

73	73 Monthly Magazine
CQ	CQ Monthly Magazine
CQVHF	CQ VHF Magazine
Popular	Popular Communications
QST	QST Monthly Magazine
MT	Monitoring Times
SCANNING USA	Scanning USA Magazine
WRN	World Radio News

Short Wave Listening

MT	Monitoring Times Monthly
PASSPORT	Passport to World Radio
WRTVH	World Radio TV Handbook

Rollman

S.W. Frequency Directory Arizona
S.W. Frequency Directory Portland

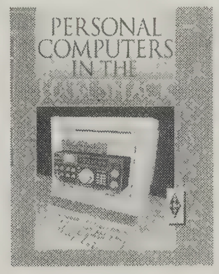
Scanner Books

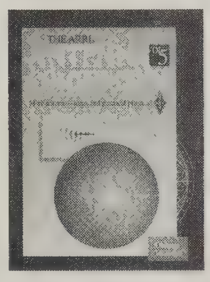
HRO stocks many books that contain scanner frequencies for localities around the country. Contact your nearest HRO store for details.

ARRL BOOKS

Personal Computers in the Ham Shack

Hams and computers, computers and hams – they're all but inseparable these days. Now there's one place to learn how to use your personal computer for all kinds of ham-related tasks: logging and contesting, station control, QSLing and circuit design. Includes a glossary of terms and a resources chapter with references for further information. **$15.95**





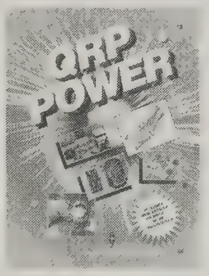
ARRL Antenna Compendium
Volume 6

The latest in the popular series, a compilation of never-before-published articles on antennas, transmission lines and propagation. Features articles on HF discones, ray tracing, dual-band VHF whip and many more. Includes valuable software. **$20**

Getting On Track with APRS
A Hands-On Guide to the Automatic Packet Reporting System

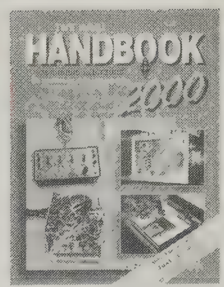
Your one stop for quick-and-easy iinstructions for installing and using the exciting new APRS software. Anyone with a packet station and computer can join the fun. APRS provides a real-time map display of participating stations. When used with a GPS receiver, it is ideal for tracking moving stations. Separate sections cover DOS, Windows and MAC platforms. Chapters include custom installation, map-making, harware requirements, and even specialized uses such as direction finding, telemetry and DX plotting. **$14.95**

QRP Power



Whether you've just been bitten by the urge to operate flea power, or you've already discovered just how much fun it is to operate with 5 watts or less, this is the book you've been looking for. It's crammed with projects you can build and resource information you can use. In addition to the best recent QRP-related articles from QST, QEX and The ARRL Handbook, there's a new, in-depth article on NN1G's popular 40-40 transceiver. **$12**

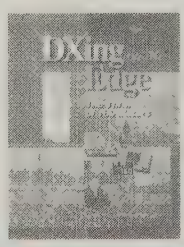
The ARRL Handbook for Radio Amateurs



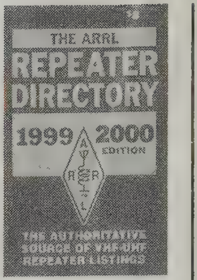
This 77th edition is a must for every ham and experimenter. Among the new projects in this edition is a new antenna tuner project, an amplifier for the upcoming Phase 3D satellite, and a new multimode VHF superregenerative receiver. If it's know-how you're looking for, you'll find it in The ARRL Handbook. **Retail $32.00**

DXing on the Edge:
The Thrill of 160 Meters

A fascinating chronicle of what it takes to navigate the 160 meter band. Includes useful operating tips and descriptions of many practical antennas needed to be successful on 160 meters. This book includes an audio CD with some truly exotic and exciting QSOs made from prominent DX stations. Many photos and historical information included, from the early 1930s through the present day. by Jeff Briggs, K1ZM. **Retail $29.95**

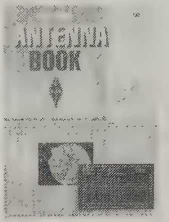


The ARRL 1999-2000 Repeater Directory



You'll find nearly 21,000 FM and ATV repeater listings covering North, South and Central America. You'll even find a number of listings for Europe and the Middle East, as well as an updated list of ARRL Frequency Coordinators. **Retail $8.00**

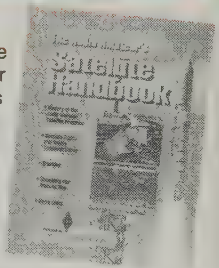
The ARRL Antenna Book
18th Edition.



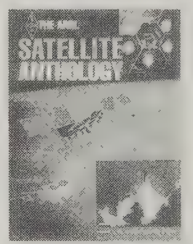
Hams and professionals will find a wealth of fun projects and practical information: Designing, building and installing almost any imaginable type of antenna; Selecting and using the proper feed line and antenna tuner; Expanded coverage of low frequency antennas; Greatly expanded coverage of elevation angles needed for world-wide HF propagation; New chapters on the fundamentals, including the effects of irregular local terrain; Expanded information on mobile and maritime antennas. Software Included. **Retail $30**

Satellites and Space

The Radio Amateurs Satellite Handbook



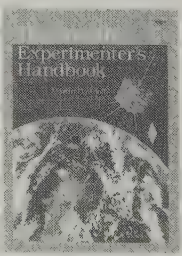
By Martin Davidoff, K2UBC (author of the highly acclaimed predecessor, The Satellite Experimenter's Handbook). The most comprehensive book ever written about amateur satellites! Long-time satellite operators and beginners will enjoy its in-depth coverage: setting up a station, choosing the right antenna for the right satellite, and tracking the "birds." Includes operating details for every active amateur satellite, the upcoming Phase 3D satellite, and all Amateur Radio operations from the US Space Shuttles (SAREX) and Russian Mir space station. Thorough appendices covering profiles of computer programs, Internet sites, FCC Rules, and a complete history of amateur satellite and space operations. Retail $22



Satellite Anthology, 4th Edition

What will the new f3D satellite do, anyway? Which amateur satellites are easiest to use? What equipment and antennas do I need? You'll find the answers – and a great deal more – in this compilation of articles from QST, the AMSAT Journal and the World Wide Web. A perfect introduction to the excitement of space communications! **$12**

Satellite Experimenter's Handbook



Widely recognized as the best book available on the ham satellites, the Satellite Experimenter's Handbook has the information you need to get on or enhance your enjoyment of the amateur satellites. You'll find an immense store of valuable data on the active satellites, plus a history of the amateur space program, ground station equipment and antennas, orbits, tracking, weather and TV satellites, and more. **$20**

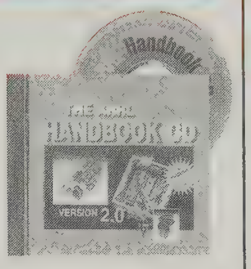
Weather Satellite Handbook

A popular and easy-to-use reference for anyone interested in viewing our world from space. The revised and expanded 5th edition features an interface project that allows you to capture fascinating images from various weather satellites and HF WEFAX broadcasts (a kit is available). You'll learn how weather satellites function, how to build or modify your own receiving equipment and how to buy or build the right antennas. **$20**. **Companion software** (revised for the 5th edition of the book) available for IBM PCs and compatibles. **$10**

CD-ROMs

ARRL CD-Roms

ARRL Handbook



The ARRL Handbook CD 3.0 features all the text and illustrations from the printed 1999 ARRL Handbook on a versatile CD-Rom. Every word, every page! It's the ultimate source of radio communications and electronics information. Find-it-Fast with search capabilities and hypertext links that take you to the exact information you're looking for. Hear audio clips of a wide variety of amateur radio modes. Add bookmarks to quickly return to your favorite topics. Print and save pages or sections, and use the clipboard with other Windows applications. This version includes an enhanced image viewer, and live World Wide Web links to launch your web browser. Zoom in and out to see drawings, photos and text enlarged or reduced. Requires Microsoft Windows. **HRO Price $49.95**

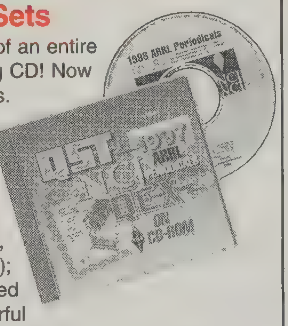
QST View

QST VIEW
1990-1994

Here are back issues of QST in convenient, space-saving CD-ROM format. Each page – all the ads, articles, columns and covers – has been scanned to provide a black-and-white image that can be read on your computer screen or printed. Easy-to-use software included on the CD allows you to: search for articles by title and author, select specific year and issue, and browse individual articles or columns.

Available sets: 1990-94; 1985-89;1980-84; 1975-79; 1970-74; 1965-69; 1960-64; 1950-59; 1940-49; 1930-39. Each set of CDs has an index to aid in finding the page or section of the issue you want to view or print. Requires Microsoft Windows 3.1 or higher. **Each set $39.95**

ARRL Periodicals CD-ROM Sets



Each Periodicals CD-ROM is a compilation of an entire year's worth of reading on one space-saving CD! Now available in 1995, 1996 and 1997 editions. Features you'll find: the full text of every QST (ARRL's membership journal), QEX (The ARRL Experimenter's Exchange) and NCJ (The National Contest Journal) published during a year—including every article, column, and product review; every drawing, table, illustration and photograph (many in color); more than 1000 advertisement images, indexed alphabetically by vendor and product. A powerful search engine finds your desired information quickly by article titles, call signs, names or just about any other word. Windows printing and Clipboard support, so you can print out articles or share them with other Windows applications. Create bookmarks at often-used articles and more.

Part Number	Description	HRO Price
CDROM 30-39	QST Magazine 1930-1939 Editions	$39.95
CDROM 40-49	QST Magazine 1940-1949 Editions	$39.95
CDROM 50-59	QST Magazine 1950-1959 Editions	$39.95
CDROM 60-64	QST Magazine 1960-1964 Editions	$39.95
CDROM 65-69	QST Magazine 1965-1969 Editions	$39.95
CDROM 70-74	QST Magazine 1970-1974 Editions	$39.95
CDROM 75-79	QST Magazine 1975-1979 Editions	$39.95
CDROM 80-84	QST Magazine 1980-1984 Editions	$39.95
CDROM 85-89	QST Magazine 1985-1989 Editions	$39.95
CDROM 90-94	QST Magazine 1990-1994 Editions	$39.95
CDROM 95	QST, QEX, NCJ, HR on CD 1995	$29.95
CDROM 96	QST, QEX, NCJ on CD 1996	$29.95
CDROM 97	QST, QEX, NCJ on CD 1997	$19.95
CDROM 98	QST, QEX, NCJ on CD 1998	$19.95

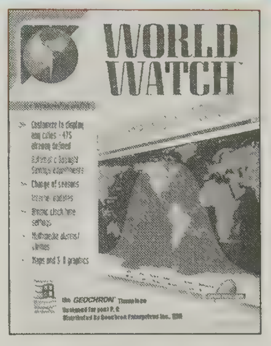
CLOCKS / CALENDARS

GEOCHRON

Computer Clock

World Watch™ & Screen Saver

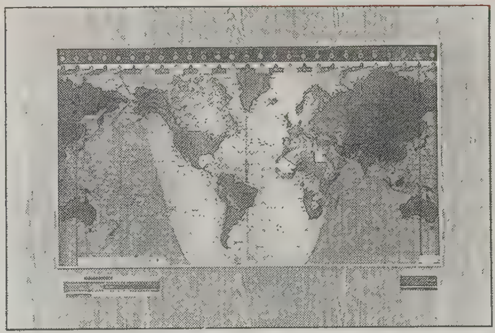
HRO Price $49.95



Keep time with the world! With Geochron's World Time Piece for Windows, you will see "real time" displayed for your selected locations around the world. You have the option to enter your own city names or to select from more than 500 pre-programmed cities. World Watch illuminates those areas of the world currently experiencing daylight. Individual digital clocks continually display and update local time for the locations selected. International Daylight Savings Time adjusts automatically. Requires MSDOS 3.1 or later, MS Windows 3.1 or later. Windows 95 compatible. 386SX or higher microprocessor, 2MB memory (4 MB recommended), 1 MB disk space. Supports all Microsoft Windows Video systems.

Wall Clock

Kilburg GEOCHRON Global Time Indicator



Size: 34" x 22" x 5"

Suggested List Price: $1495.95 – Call for HRO Special

Geochron is a true global time indicator. At any moment, Geochron displays the correct time everywhere in the world – the week, date, the sun's declination and distribution of daylight and darkness on the earth's surface. Geochron is available in four (4) models and a multitude of housing finishes and trim colors. Packaged for "drop shipment" anywhere in the world via UPS or DHL. Geochron can be surface mounted on the wall like a picture or recessed using optional mounting brackets. **A "must item" for a First Class Ham Shack. Call HRO for special pricing opportunities.**

Calendars

CQ Calendars for 2000

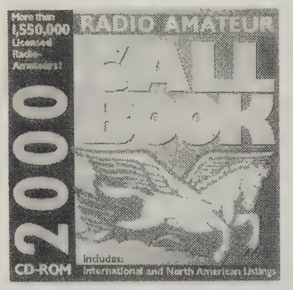
Radio Classics Calendar
15 Month 2000/2001 Calendar

Radio
Classics
RCC2000

Amateur
Radio
ARC2000

Amateur Radio Calendar

CD-ROMs

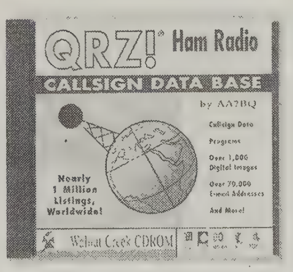

More than 1,550,000 Licensed Radio Amateurs!
RADIO AMATEUR
CALL BOOK
2000
CD-ROM
Includes: International and North American Listings

Radio Amateur Callbook CD-ROM 2000

HRO Price
$49.95

This is the most extensive radio amateur directory on the market. Incorporating both the North American and International editions of the world's most respected callbooks, it provides more than 1.6 million listings in more then 250 countries, islands, and dependencies. By including several countries not found in other directories, the Callbook offers unmatched world coverage.

- Windows / DOS platform.
- Data display by callsign, last name, city, license class, issue, and expiration dates.
- Search U.S. stations by callsign, last name, and city.
- Search international by callsign, last name, city. Text search by name, street, city, province, or region after selecting country.
- Unique sound output of Morse code alphabet can be used by the blind or anyone who wants to learn Morse code.
- Windows clipboard tool for single label or applications. Import data into logging spread sheet, word processor, or label printing program. Logging program interface available.
- Listings of clubs, "Then and Now" call letter changes, military, and silent keys.
- Text files listing prefixes by countries (40 zones), DXCC countries list, census of amateur prefixes, QSL bureaus, reciprocal operating agreements, 10-meter beacons, 6-meter beacons, international "Q" signals, and much more.


QRZ!® Ham Radio
CALLSIGN DATA BASE
by AA7BQ
Callsign Data
Programs
Over 1,000 Digital Images
Over 70,000 E-mail Addresses
And More!
Nearly 1 Million Listings, Worldwide!
Walnut Creek CDROM

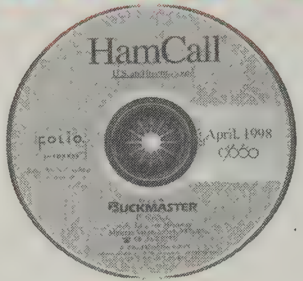
QRZ! Ham Radio CD-ROM

HRO Price $19.95

Ham radio and short wave enthusiasts can use the QRZ callsign data base with several ham radio logbook utilities that support QRZ. Also on the CD-ROM: the complete text to FCC approved license examinations, questions and answers, current rules and regulations, and 100's of shareware utilities.

Of particular interest is the new QRZWIN call sign search-and-retrieval software that allows easy access to more than 600,000 names and addresses of US and Canadian hams. The full name, address and FCC license information is included with each record. QRZWIN provides editing and printing functions which make custom mailing lists easy. Import the information to your favorite word processor for advanced formatting and list processing. QRZ features an open database with documentation so users can create their own custom applications. For use with Windows 3.1, Windows 95, or DOS software.

BUCKMASTER



HamCall

HRO Price $50.00

Buckmaster provides easy access to information about all those other Hams out there around the world. This international database has convenient search modes and allows you to print out mailing lables in your choice of format.

- Menu-driven; all information available through the main menu.
- New U.S. and international searching capabilities by class, name, street address, city, state/province, postal code, county, and country.
- Complete U.S. and extensive international listings. More than 1,500,000 call signs, including clubs, military, RACES, silent keys, and vanity calls.
- More than 103,000 new and updated listings worldwide.
- Data displayed for U.S. hams: callsign, class, name, address, license issue date, license expiration date, birth date (more than 678,000 birthdates still in database), previous call, previous class, latitude, longitude, grid square, county, time zone, area code, e-mail address, QSL manager, beam heading, distance, www URL, and more than 3,500 photos (list included).
- International data generally includes callsign, name, address, and latitude/longitude based on city or town for greater precision.
- Prints standard 1-up labels for QSL cards, or print all information for each ham. Enhanced label printing capabilities for Windows. Pick the printer and font. Label size, margins, colums, and rows are fully configurable.
- Calculates beam heading and distance from your home QTH to each call you look up automatically. Distance is expressed in miles and kilometers.
- Improved ICALL setup routine with uninstall option.
- Edit information, change addresses, add records, delete old, add e-mail addresses, phone and FAX numbers.
- Requires IBM or compatible PC, DOS 3.1 or later, CD-ROM drive, 640k RAM. Photo display requires VGA adapter, SVGA recommended. DOS, Windows 95/98 supported. Y2K compatible.

BOOKS

artsci BOOKS

Reference

Amateur Handbook

This book is a mini Amateur library! Contains charts, tables, construction plans for all areas of amateur radio. Never look through all your other books again for that piece of information. It's here! **HRO Price $14.95**

U.S. Repeater Map Book

The PERFECT traveling companion for the radio enthusiast. Road maps show major highways and cities in every state. Amateur radio repeater frequencies are included. This is a must for truckers and travelers. Maps are enhanced to provide greater highway detail. **HRO Price $9.95**

Technical

Guides to Technical Radio Modifications & Alignment Controls

Easy to follow instructions (with detailed drawings) to enhance almost all brands of amateur HT's and mobiles. Includes extended frequency plans. **Volume A** (Icom, Kenwood, Scanners), **Volume B** (Alinco, Standard, Yaesu, others) **HRO Price $19.95 each**

Lost Users Manuals

Lost the manual to your radio? Bought a used rig with no manual? Lost Users Manual has operating instructions on most popular VHF & UHF radios: Alinco, Icom, Kenwood, Yaesu, Uniden. **HRO Price $19.95**

Shortwave

North American Shortwave Frequency Guide

A comprehensive by frequency list of all HF broadcasts by every country (worldwide) and service that can be heard in North America. **HRO Price $19.95**

Scanning

Federal Assignments

Ever wonder what the federal government agencies are up to? Listen in! This book, third edition, lists secret frequencies used by our government. This is the most comprehensive book we know of. **HRO Price $24.95**

Police & Fire Communications Handbook

With the ever changing police frequencies in Southern California, it's time an accurate, up-to-date scanner book was available. More than 380 pages of frequencies, inputs & tones. **HRO Price $19.95**

ALINCO 2000

Now you have more reason than ever to rely on Alinco for high quality, affordable prices, exciting new products and proven performers. Alinco's Toyama facility has **ISO 9002** certification. No wonder Alinco is Amateur Radio's Value Leader™!

DJ-V5TH 2m/440 HT* NEW!

NEW! Extended Rx from 76 ~ 999 MHz‡ includes wide band FM, alphanumeric display, 200 Memories, CTCSS encode+decode, 5 watts output, compact size, 4 scan modes, 5 scan banks, cross-band operation for satellite, auto-dialer, 13.8 VDC direct input and more!

DJ-195T 2m HT NEW!

NEW! Alphanumeric display, 40 memories, CTCSS encode+decode, DCS, auto-dialer, burglar alarm, 13.8 VDC direct input, experimental mosquito repel tone! Comes with 5W battery!

DJ-180TH (144 MHz)*, DJ-280TH (222 MHz)*, DJ-480T (440 MHz)

Proven performers, super value! 10 memories expandable to 50 or 200, illuminated display.

DJ-C5T 2m/440 "Credit Card" HT

"Credit Card" size, internal speaker, 50 memories, CTCSS encode+decode, AM airband RX, 300 mw output, soft case, 600 mAh lithium-ion battery, desk charger included!

DJ-S11T (144 MHz), DJ-S41T (440 MHz) HT, DJ-S46 (FRS)

"Pager size", 21 memories, easy to operate and program, great TX and RX audio, self-storing pivot antenna, uses AA batteries, 340 mw output, fits in pocket or purse. Amazing low price! (DJ-S46 - no license required, 14 channels)

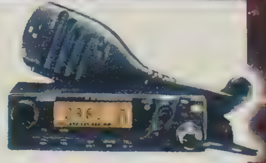
DJ-G5TH 2m+440 HT*

Our most popular dual-bander, up to 5 watts output, Channel Scope™ display, 100 memories/band, CTCSS encode+decode, AM airband RX, programmable second PTT, full duplex and crossband repeater capabilities, 13.8 VDC direct input, illuminated keys and display, RF attenuator and more!

DJ-X10T Multimode Wide Range Receiver

100 KHz ~ 2 GHz (cellular blocked), 1200 memories, alpha numeric display, Channel Scope™ receives WFM, NFM, USB, LSB, AM and CW. Internal HELP function, much more! (DJ X10K export version available)

***Optional 2 watt batteries available.**



DR-M03SX (10m/10 watts) DR-M06TH(6m/20 watts) DR-430TQ (440 MHz/35 watts) FM Mobile/Base

Local and DX FM communications can be yours! Great for simplex or repeater operations, includes CTCSS encode (decode optional), 100 memories. (DR-430–20 memories; CTCSS decode included)

DR-140TQ (CTCSS decode) DR-140TPKT (for Packet) 2m FM Mobile/Base

Full power, low cost! Alphanumeric display, CTCSS, 50 watts output, 51 memories, AM airband RX.

DR-605TQ (CTCSS decode) 2m/440 Mobile/Base

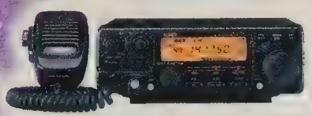
Value Leader! 50 watts VHF/35 watts UHF, 51 memories/band, 430 ~ 449.995 MHz range allows for satellite work, internal duplexer, 9600 packet port. Check the super low price! Dual band, dual RX.

DR-610TQ (CTCSS decode) 2m/440 Mobile/Base

50 watts VHF/35 watts UHF, Channel Scope™ Display, 120 memories, detachable face, 2 VFOs, AM airband RX, V/U, V/V, U/U, U/V operation, RF attenuator, CTCSS, more! Direct frequency entry from keypad.

DM-330MV Communications Grade Switching Power Supply NEW!

Tiny, powerful, 30A continuous, 32A peak output, weighs less than 5 lbs! Variable output 5 ~ 15 VDC, memory output, rear panel high-current (30A) terminals, triple circuit protection, illuminated V/A meter, ultra-quiet with patent-pending noise-shift circuit. Front panel cigar (10A) and quick-connect (5A) terminals, ripple less than 15mV p-p. Perfect for travel, station or test bench use. There's no switching supply like it!



DX-70TH (100w) HF+6m Mobile/Base/Portable

160 ~ 6m Amateur band TX in all modes, general coverage RX from 150 KHz ~ 30 MHz and 50 ~ 54 MHz. 2 VFOs, 100 memories, removable face, speech compressor, SSB, CW and AM narrow filters, full, semi or automatic break-in, multi-function control, and MUCH more! Ask about optional EDX-1 or EDX-2 antenna tuners.

DX-77T HF Base/Portable

Clean, crisp RF modulation, easy to operate! Low noise floor from DDS. 160 ~ 10m Amateur band TX in all modes. 500 KHz ~ 30 MHz general coverage RX, 2 VFOs, internal keyer (6 ~ 50 wpm), 100 memories, 13.8 VDC input, speech compressor, front-mounted speaker, RIT, easy split operation, compatible with EDX-1 or EDX-2 antenna tuners. No added accessories needed!

Simple ▪ Clean ▪ Dependable

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ASK YOUR DEALER ABOUT ALINCO'S 2 YEAR EXTENDED WARRANTY.

MR 439.700
NFM
FM TRANSCEIVER VX-5
YAESU

FT-50RD
This durable, multi-featured 5 Watt Dual Bander is manufactured to rigid MIL-810 standards. Featuring wideband frequency coverage,* CTCSS/DCS operation, Dual Watch, 112 memory channels, and Digital Voice Storage.

FT-51R
This full-featured 5 Watt Dual-Band Handheld includes dual receive, 120 memory channels (80 if Alphanumeric), Auto Tone Search, Spectra Scope, and V/V, U/U and V/U operation.

VX-1R
The pocket-sized VX-1R is small in size only. Featuring Smart Search,™ DCS/CTCSS, Dual Watch, ARTS,™ wide-band coverage (76–999* MHz plus AM BC). The VX-1R provides 291 memory channels, and puts out ½ Watt (1 Watt w/optional E-DC-15 DC Adapter).

* Cellular Blocked

FT-11R
This compact 2M Handheld features 150 memory channels (75 if Alphanumeric), 10-memory DTMF Autodialer, Automatic Battery Saver (TX/RX), backlit Keypad, and are available in 1.5 Watt and 5 Watt versions.

FT-411E
The affordable FT-411E is compact and durable. This 5 Watt VHF FM Handheld features a die-cast case, 40 memory channels, 10 DTMF memories, built-in VOX, CTCSS, and multiple scan modes.

FT-23/33R
These ultra-compact, 5 Watt VHF FM Handhelds feature rugged die-cast aluminum cases, 10 memory channels, optional CTCSS, and multiple scan modes. The FT-23R (2M) and the FT-33R (222 MHz) are easy to operate, and give outstanding performance.

FT-10/40R
These single-band handhelds are manufactured to MIL STD 810 specifications, featuring either 30 or 99 memories, CTCSS/DCS operation, Dual Watch, and are available in 2.5 Watt or 5 Watt versions, with four keypad options.

VR-500
This miniature Handheld Receiver provides FM, AM, SSB and CW reception on 100 kHz–1300 MHz, with 1091 memory channels, Smart Search,™ versatile Dot Matrix display, Band Scope, and Dual Watch.

VX-5R
Although Yaesu's newest Tri-Band Handheld Transceiver is the world's smallest, it offers the performance of a full-size unit. The VX-5R operates on the 50 MHz, 144 MHz and 430 MHz bands with 5 Watts of power output, along with ultra-wide receive coverage of the VHF and UHF spectrum, plus AM medium- and short-wave broadcast reception. The VX-5R is military rated, so its durable, lightweight design allows you to take it anywhere.

It is equally suited to walking through the concrete jungle as it is to forging the raging rivers of a real one. Along with a temperature display, the optional barometer pressure sensor unit gives a read-out of barometric pressure and altitude.

TOUGH GUYS.

When you're small, you get picked on. Isn't that how it goes? Well not in Yaesu territory, because not only do we design compact handhelds for efficiency, but we give these clever little guys plenty of muscle. Yaesu handheld transceivers have earned the bragging rights for being the smallest handhelds with the most durable water resistant casings ever created. And packed inside the brawn are engineering accomplishments in performance that are unmatched in the industry. Our high-tech handheld transceivers provide clean power output on the VHF and UHF bands and offer revolutionary features that allows these tough guys to continually outperform the competition. Learn more about Yaesu products on the web at www.yaesu.com

YAESU **...leading the way.**

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THE VR-500 BRINGS YOU THE WORLD!

YAESU
145.5000NFM
A w600k 20k
COMMUNICATIONS RECEIVER VR-500
B.S
B.W
P.SET
CLR
MEMO
MW/MC
SCH/SCN
STEP
SW/SC
S.SCH/PMS
PW
MODE
DW
ATT
LAMP
SET/NAME
ENT

CARRY THE WORLD WITH YOU!

Continuous Coverage:
100 kHz to 1299.99995* MHz!

*Cellular telephone frequencies are blocked and cannot be restored.

All Mode Reception:
FM, Wide-FM, USB, LSB, CW, and AM!

Huge Memory Capacity:
1091 Channels!

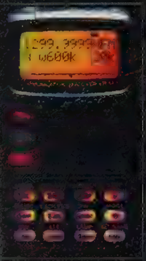
Ultra Compact Size!
58 mm x 24 mm x 95 mm
220 g (including Antenna / Battery)

Simulated display / keypad Illumination

Actual Size

Features

- Multiple Power Source Capability
- Direct Keypad Frequency Entry
- Large High-Output Speaker
- Polycarbonate Case
- Real-Time 60-ch* Band Scope
  Range 6 MHz / Step 100 kHz



- Full Illumination For Display And Keypad
- Versatile Squelch / Monitor Key
- Convenient "Preset" Operating Mode
- Huge 1091-ch Memory System With Search & Scan
  - Regular Memories (1000 ch)
  - Search Band Memories (10 ch)
  - Preset Channel Memories (19 ch +10 Weather Channels)
  - Dual Watch Memories (10 ch)
  - Priority Memory (1 ch)
  - Smart Search™ Memories (11/21/31/41 ch)
- Convenience Features

•1 MHz Fast Steps •Front-end 20 dB Attenuator •RF Squelch •Power On / Power Off Timers • Adjustable Battery Saver •Extensive Menu Customization •Clone Capability •Computer Control

COMMUNICATIONS RECEIVER

VR-500

All-Mode Wideband Receiver

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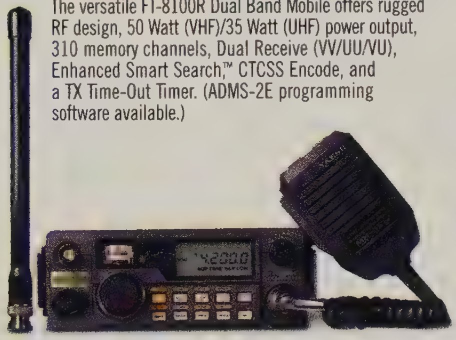
FT-8100R
The versatile FT-8100R Dual Band Mobile offers rugged RF design, 50 Watt (VHF)/35 Watt (UHF) power output, 310 memory channels, Dual Receive (VV/UU/VU), Enhanced Smart Search,™ CTCSS Encode, and a TX Time-Out Timer. (ADMS-2E programming software available.)

FT-100
This ultra-compact HF/VHF/UHF 100W Transceiver provides SSB, CW, AM, FM and AFSK coverage of the HF, 6M, 2M and 70 CM bands. Features include 300 memory channels, built-in Electronic Memory Keyer, DSP, IF Shift, IF Noise Blanker, and CTCSS/DCS.

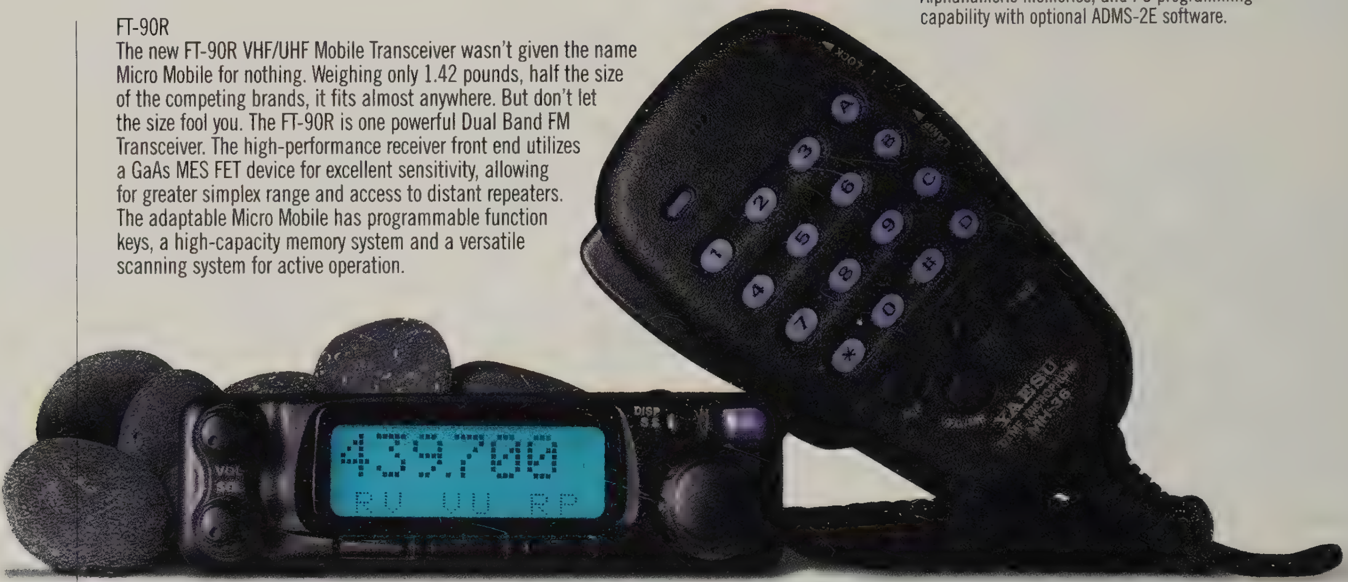
FT-3000M
This 70W high-powered 2M FM Mobile provides extended UHF receiver coverage, AM Aircraft RX, and is MIL-STD approved. The FT-3000M features 81 memory channels, Smart Search,™ CTCSS/DCS, optional ADMS-2E programming software, and is 1200/9600 Baud Packet compatible.



FT-290RII
Ideal for base, vacation, or expedition use, this 25 Watt 144 MHz Multimode Transceiver is outstanding for emergency, travel, or weak-signal DX work. Optional battery pack allows over-the-shoulder portable use for search-and-rescue operation.

FT-2600M
This heavy-duty VHF FM Mobile is encased in a durable aluminum die-cast chassis/heatsink assembly, and manufactured to MIL-STD 810 requirements. Features include 60 Watt power output, 179 memory channels, direct keypad frequency entry from microphone, Alphanumeric memories, and PC programming capability with optional ADMS-2E software.

FT-90R
The new FT-90R VHF/UHF Mobile Transceiver wasn't given the name Micro Mobile for nothing. Weighing only 1.42 pounds, half the size of the competing brands, it fits almost anywhere. But don't let the size fool you. The FT-90R is one powerful Dual Band FM Transceiver. The high-performance receiver front end utilizes a GaAs MES FET device for excellent sensitivity, allowing for greater simplex range and access to distant repeaters. The adaptable Micro Mobile has programmable function keys, a high-capacity memory system and a versatile scanning system for active operation.



LITTLE BIG MOUTH.

Life is an adventure. So whether you're on expedition or vacation, you will probably encounter some rough going along the way. And when you do, you'll be glad that your mobile transceiver is a Yaesu. With units small enough to install almost anywhere and rugged enough to achieve military approval for shock and vibration, Yaesu is the obvious choice for dependability. Its exceptionally clear signal and wide dynamic range tame even the most crowded bands, and provide outstanding protection from intermodulation in urban areas. Learn more about Yaesu products on the web at www.yaesu.com

YAESU ...leading the way.

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HF ENTHUSIASM

Yaesu, Choice of the World's top DX'ers

MICRO MOBILE FT-100

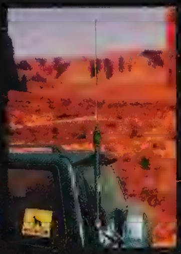
V-A
MG6 300
CH
DBP
VFO
21.025.00
ALC
10 CW
A/B A=B SPL QMB
MODE

Over 40 years of experience in HF transceiver design has firmly established Yaesu as the choice of the world's top DX'ers. The knowledge that produced unequaled RF technology and design that is found in the State of the Art FT-1000MP can also be found in the miniature FT-100. The FT-100 while small in size 6.3" × 2.1" × 8.1"(160 W × 54 H × 205 D mm :w/o knob) is large in features and performance. This is accomplished by using the most advanced manufacturing techniques and component mounting technology. High Dynamic range RF front-end technology and Advanced Digital technology such as DSP sets a new standard of receiver performance for miniature HF transceivers. The single piece die cast frame, dual cooling fan system and revolutionary RF high power design technique keeps the FT-100 running cool and smooth in the most adverse operating environments. (TX Power output=100W HF, 50W VHF/20W UHF) The TX Equalizer offers crisp, clear and clean TX audio reproduction that until now was only found in top of the line HF base stations. The optional ATAS-100 (active tuning antenna system) ushers in a new age of mobile and field day operation (from HF to UHF frequencies). Add the optional ATBK-100 base kit (Good for limited space, simple setup.) and you've got a base station that ranks among the best in the world.

Features

- Frequency coverage:
  RX : 100 kHz-961 MHz (cellular blocked)
  TX : 160-6 m/144-148 MHz/430-450 MHz
- Power output : 100 W (160-6 m), 50 W (144 MHz), 20 W (430 MHz)
- DSP Bandpass Filter, Notch Filter, Noise Reduction, and Equalizer
- IF Noise Blanker
- SSB, CW, AM, FM, AFSK, Packet (1200/9600 bps) operation
- Detachable Front Panel
- Two Antenna Jacks (HF/50 and 144/430)
- IF Shift
- VOX
- Dual VFOs
- Available IF bandwidths of 6 kHz, 2.4 kHz, 500 Hz, and 300 Hz (6 kHz, 500 Hz, 300 Hz filters optional)
- Built-in Electronic Memory Keyer
- Speech Processor
- Built-in CTCSS and DCS for FM operation
- Automatic Repeater Shift and Auto-Range Transponder System
- Smart Search™ Automatic Memory Channel Loading System
- 300 memory Channels
- Quick Memory Bank (QMB)
- Bright LCD with multi function display
- Optional FC-20 External Antenna Tuner
- Compatible with ATAS-100 Active Tuning Antenna System. Add the optional ATBK-100 base kit

V-A
MG6 300
21.295.00
SPL QMB



MICRO MOBILE SERIES

FT-100

Ultra-Compact HF/VHF/UHF Transceiver

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3 million frequencies only he can hear.
162.5500 MHz
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SONY
PC

Only Sony can turn your PC into a watchdog of the airwaves with the Sony Radio Frequency Scanner and CD-ROM frequency database.

Use the Sony Radio Frequency Scanner with PC Interface and be forewarned about approaching weather systems, traffic conditions and emergency situations. You can even get inside information at some of your favorite sporting events. The Sony CD-ROM gives you easy access to listings of 3 million U.S. frequencies. It makes scanning fast—and easy.

A unique bi-directional PC interface lets you use your PC to control all the Sony Radio Frequency Scanner's standard functions, as well as its special features, including:

- 20 programmable Scanning Ranges.
- Virtually unlimited Memory and Skip Preference Files.
- Data Import and Export between Scanner and PC.
- A searchable CD-ROM database of over 3 million U.S. frequencies.

Performance you can rely on

The Sony Radio Frequency Scanner with PC Interface is a powerful hand-held scanner with the latest scanning circuitry for top performance. It features the full range of functions and features scanner enthusiasts want:

- 25MHz to 1,300MHz Frequency Scanning.
- 300-Channel Memory for personal customization.
- Public Service Scan of 9 pre-programmed bands, including police, air, fire/emergency, weather, marine, FM, and TV.
- Intelligent Active Memory that saves the 10 most recently received frequencies for convenient recall.
- AM and Narrow and Wide FM Reception.
- Back-lit Display.
- Compatible with Windows® 95.

SONY
PC
SONY
WAVEMARK

Includes ICF-SC1PC Scanner, CD-ROM and interface cable

The Sony Radio Scanner with PC interface. . . watchdog of the airwaves.

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SONY®

SONY

Also available in teeny weeny version.
ICF-SW07

The Sony ICF-SW07 World Band Radio® holds nearly 3000 frequencies in memory, and is still small enough to take anywhere. Its replaceable EEP Rom Chip is preprogrammed with the world's top stations. And each year Sony will offer an updated chip for less than twenty dollars. You can also preset up to 100 of your favorite stations with the "My Memory" button. And tuning is easier than ever. So listen to the world from anywhere in yours, and leave the satellite dish at home.

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SONY

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Listen to late-breaking world events at their source. Tune in to major sporting events, and cheer on your favorite team. Brush up on your French. . .or your Arabic. . .or your Chinese. **Sony World Band Receiver™ Radios** bring the world in loud and clear—wherever you are—with the latest in receiver technology. Whether you're a novice or a radio buff, there's a Sony World Band Receiver Radio with user-friendly features designed for you.

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A large display and well spaced keys, knobs & dials helps make it easy to work the compact 'R75.

NEW IC-R75 HF RECEIVER

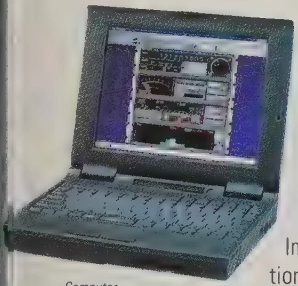
Cutting edge technology for today's serious DX'er, yet easy & affordable for a casual listener.

Hear MORE of what's out there. Pick up more amateur, marine and shortwave broadcasts. The new 'R75 covers from **0.03 – 60.0 MHz*** – wider than most other HF receivers.

Pull out the weak signals. The IC-R75 sports a remarkable arsenal of signal detection weapons, ready for your command: A **triple conversion** receive system rejects image and spurious signals. An **automatic notch filter** reduces interference by minimizing "beat" and "howl" signals. Use **Twin Passband Tuning (PBT)** to zero in on signals by shaping the IF passband. ICOM's all new **Synchronous AM detection (S-AM)** technology reduces signal fading in AM broadcasts. Optional **Digital Signal Processing (DSP)** noise reduction in the AF stage converts analog SSB, AM and FM signals to crisp, clear audio output (you'll hear the difference on the 'R75's **large front mounted speaker**). Further tailor the 'R75 to meet your listening needs by installing **up to two optional filters**.

There's much more. Plan to test drive a surprisingly affordable new IC-R75 at an HRO showroom soon.

ICOM brings you the BEST in wide band receivers



Computer not included.

IC-PCR1000 **The original "World in a Little Black Box".** 100% PC hardware external. Impressive 0.01 –1300 MHz* wide band reception, all modes. Listen to your favorite broadcasts while working in foreground applications. Designed for Windows® 3.1 or 95.

"The PCR1000 has something to intrigue and satisfy everyone. This is a fun product." – *QST, 7/98*

IC-R8500 **The expert's choice.** 0.5 – 2000 MHz*; commercial grade; all mode; IF shift; noise blanker; audio peak filter (APF); 1000 memory channels; built-in CI-V command control and RS-232C port for PC remote control with ICOM software for Windows®.

"If you want a receiver that is both a superior world band radio and a solid scanner, the new Icom IC-R8500 is the best choice."

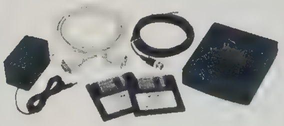
– *Passport to World Band Radio, 1998*

IC-R10 **(left) Advanced performance and features.** 0.5 – 1300 MHz*; all mode; alphanumeric backlit display; attenuator; 7 different scan modes; beginner mode; 1000 memory channels; band scope; includes AA Ni-Cds and charger.

IC-R2 **(right) Excellent audio, tiny package.** 0.5 – 1300 MHz*; AM, FM, WFM; easy band switching; CTCSS decode; 400 memory channels; large internal speaker; priority watch; auto power off; MIL SPEC 810 C/D/E (shock/vibration); weather resistant; includes 2 AA Ni-Cds and charger.

IC-PCR100 **A little different look, a little fewer features, a little lower price.** Enjoy wide band 0.01 – 1300 MHz* reception on AM, FM and WFM. Outstanding performance. Designed for Windows® 95 or 98. Download the full version software today: <www.icomamerica.com>

Computer not included



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Connect with ICOM & WIN

Enter ICOM's Connect 2000 monthly giveaway and you could win a new IC-2800H or IC-706MKIIG. It's easy! Once a month, ICOM will post a question on its Website, at authorized ICOM dealers, in the ICOM Funmobile, and at ICOM attended ham events. Your job is to find the correct answer and mail it in. Once a month, ICOM will select at random one correctly answered entry and reward the sender with that month's new radio. Visit HRO or the ICOM America Website for complete rules. No purchase necessary. Void where prohibited. Contest ends 3/31/00.

LEGACY

IC-706 SERIES

The most versatile series of compact, multi-band rigs ever made.

IC-706MKIIG

THE BEST LITTLE RIG GETS EVEN BETTER

PROVEN PERFORMANCE

- HF/6M/2M – and now, 440MHz
- More power. 50W on 2M, 20W on 440 MHz
- AF-DSP
- Plug and play filters – no soldering required
- Easy-to-navigate menus
- Auto repeater
- CTCSS encode/decode
- Backlit keys

IC-707

IC-746

ICOM Connect 2000

Connect Look for opportunities to WIN with ICOM in upcoming amateur contests and events. Visit HRO or see our Website for more details.

Connect The ICOM America Website continues to grow. Utilize this important tool to get the latest info on new rigs, specials, and more.

Connect Whether you gain full control of your rig or just adjust settings, use ICOM software to add PC convenience to your operations.

Connect Your HRO dealer carries all the latest ICOM amateur equipment and accessories. Call or visit today and start having MORE ham fun!

IC-756 (top), IC-775DSP (center), IC-781 (bottom)

IC-707 Extra Class Performance at a Novice Price • 100W (AM 25W) • All Mode • Simple to Use • Big, Well Spaced Keys and Dials • Large Backlit LCD Display • 500 kHz–30.0 MHz General Coverage Receiver • Full Duty Cycle • Large, Front Facing Speaker • PC Programmable*

IC-746 HF/6M/2M • 100W • All Mode • Full Duty Cycle • Quad Conversion Receiver • IF-DSP • Front Panel Adjustable NR • Audio Peak Filter • Auto Notch Filter • 3 Optional Filter Positions • Twin Passband Tuning • 4.9" LCD/Dot Matrix Display Shows All Operating Conditions, Metering and Spectrum Scope • CW Memory Keyer • VOX • Automatic Antenna Tuner • PC Controllable*

IC-756 HF/6M • 100W • All Mode • Full Duty Cycle • Quad Conversion Rx • Dual Watch • IF-DSP • Front Panel Adjustable NR • Audio Peak Filter • Auto Notch Filter • 2 Optional Filter Positions • Twin Passband Tuning • 4.9" LCD/Dot Matrix Display Shows All Operating Conditions and Spectrum Scope • CW Memory Keyer • VOX • Auto Antenna Tuner • PC Controllable*

IC-PW1 *Give your desktop station 1kW of power. Remote control head, 100% duty cycle, compact size.*

IC-756PRO (see inside cover) This new HF/6M rig pushes digital to new levels! Call HRO for more details. Expected arrival: early spring. This device has not yet been approved by the FCC and may not be offered for sale or purchase, or be sold or purchased, until approval of the FCC has been obtained.

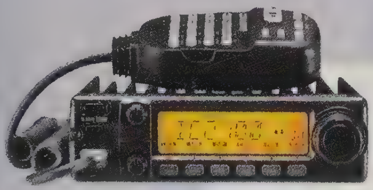
IC-775DSP HF • 200W • All Mode • IF-DSP with Noise Reduction, Auto Notch, Audio Peak Filter, Manual Notch and Twin Passband Tuning • Adjustable Noise Blanker • Dual Watch • Adjustable AGC • CW Keyer • Auto Antenna Tuner • VOX • CTCSS Encoder • PC Controllable*

IC-781 The Ham's Ultimate 150W HF Rig • Features all the Bells and Whistles • Built-in Power Supply • All Mode • CRT Display with Band Scope • PC Controllable*

ICOM's SATELLITE rig, the performance proven IC-821H, has earned high praise from both the amateur press and the hams who are out there pushing the hobby's envelope.

IC-821H 2M/440MHz • All Mode • REAL Satellite & Digital Performance with Continuous Adjustable Tx Power • Sub Band Tx, Independent Rx • 9600 bps Packet Data Port • Noise Blanker & IF Shift on Main/Sub • Satellite Tracking with Doppler Correction • Compact Size

IC-2100H Rugged 2M • 55 Watts • Easy to Use • Full Function Mic • IMD Fighter • MIL SPEC 810†† • Large Green/Amber LCD • Large Keys and Knobs

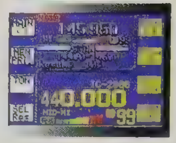


IC-207H Super Compact, Detachable Control Panel* • 2M/440MHz • 2M(45W)/440 MHz(35W) • Work One Band at a Time • Up to 9600 bps Packet* • Air Band RX† • MIL STD 810††

NEW IC-2800H Audio Excellence and Video Excitement • 2M/440MHz • 3" (d) TFT Color LCD Screen • NTSC External Video Input (PAL in Europe) • WFM & AM (Rx Only), FM • 50W/2M, 35W/70CM • 9600 bps Packet Data Port • V/U, U/V, Dual Band, Cross Band Repeat • Independent Band Controls • Air Band Rx† • Duplexer • Attenuator

Use the hi-visibility screen to add fast-growing visual dimensions to your hobby. Experiment!

MAIN
145.880
IC-2800
440.000
99



ICOM MOBILE rigs are PC programmable, crafted with a one piece, die-cast aluminum chassis, offer CTCSS encode/decode, and come with a backlit, full function hand mic.

ICOM Connect 2000

ICOM HTs offer the best and latest features. Most are PC programmable*, offer CTCSS encode/decode, meet MIL SPEC ...and best of all, are easy to use.

NEW IC-T81A World's First QUAD Band HT • Easy to Use • 6M/2M/440MHz/1.2GHz • Wide Rx† • 5W@13.5VDC*, 1W/1.2 GHz • Ni-Mh Battery • Auto Repeater • Water Resistant

IC-T8A Easy to Use, Compact 6M/2M/440MHz Tri Bander • Wide Rx† • 5W@13.5VDC* • Ni-Mh Battery • Auto Repeater • Water Resistant

IC-W32A 2M/440MHz • 5W@9.6VDC • Easy to Use • 200 Memories • Alphanumeric Display & Paging • V/V, V/U, U/V, U/U • Backlit Keypad • Wide Rx†

NEW IC-T7H 2M/70CM • Easy to Use • Up to 6 Watts* • Air Band Rx† • Pocket Beep • Auto Repeater • Work One Band at a Time

IC-Q7A 2M/70cm Mini Size • Big Audio • 30 to 1300 MHz Rx† (Cell Blocked) • Advanced Scanning • Includes 2 "AA" Ni-Cds & Charger

IC-T22A 2M • Easy to Use • Alphanumeric Display • Wide Rx, Air Band† • 5W@13.5VDC* • 3W@9.6VDC Standard

IC-T2H 2M • Super Rugged • 6W@9.6V DC • 500 mW Audio • 8 Front Panel/PC Programmable* Keys • 2 "AA" Ni-Cds and Wall Charger Included

ICOM Connect 2000 VHF UHF

Most ICOM rigs are PC programmable with select ICOM options

PC Ready!

ALL MIL SPEC† HTs

146.00
IC-T22A
145.600
443.55 146.52
146.000
ICOM

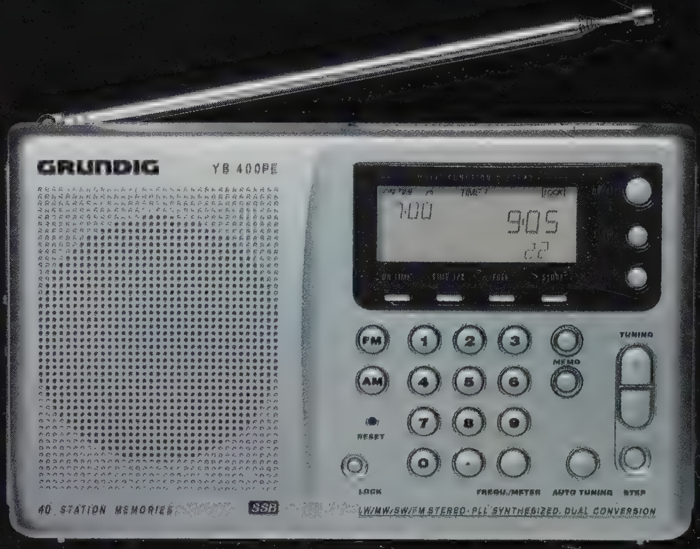
IC-Q7A is available with an optional shorter antenna

IC-T81A's MIL SPEC test is pending

IC-T2H IC-T22A IC-Q7A IC-T7H IC-W32A IC-T8A IC-T81A

*Optional equipment required †Reception guaranteed on US ham bands only ††MIL STD 810 C/D/E for shock/vibration ©1999 ICOM America, Inc 2380 116th Ave NE, Bellevue WA 98004 • 425-454-8155 The ICOM logo is a registered trademark of ICOM, Inc. All specifications are subject to change without notice or obligation. Questions? Contact HRO or contact ICOM America Tech Support on CompuServe's® HamNet forum at 75540,525 or send e-mail to 75540.525@compuserve.com. CompuServe is a registered trademark of CompuServe, Inc. HROALLW99ALL899Y

GRUNDIG
Tunes in the World


GRUNDIG
YB 400PE
FM
AM
MEMO
TUNING
RESET
LOCK
FREQU./METER
AUTO TUNING
STEP
40 STATION MEMORIES
SSB
LW/MW/SW/FM STEREO-PLL SYNTHESIZED DUAL CONVERSION

The most powerful compact
Radio AM/FM Shortwave Receiver.

Yacht Boy 400
Professional Edition

Powerful performance and sleek titanium look design combined with sophisticated features make the YB 400 PE a value! Covers shortwave, AM, FM-stereo and longwave: SW 1.6-30 MHz, AM 530-1710 KHz, FM 88-108 MHz, LW 150-353 KHz. SSB circuitry for reception of shortwave single sideband two-way communications, e.g. ham radio, aeronautical and marine. 2 clocks. 40 memories. Built-in antennas.
External SW antenna socket. Includes AC adapter, case, earphones, supplementary SW antenna. Uses 6 AA batteries (not included). Dimensions: 7.75" L x 4.5" H x 1.5" W.
Weight: 1 lb. 5 oz.

GRUNDIG
YB 300PE
ON/OFF
SLEEP
LIGHT
MODE
METER
MEMORY
TIME SET
hour
minute
band
entry
24 STATION MEMORIES
AM/FM-STEREO/SW• PLL SYNTHESIZED

German Look! German Sound!
German Quality! Power and Performance.

Yacht Boy 300
Professional Edition

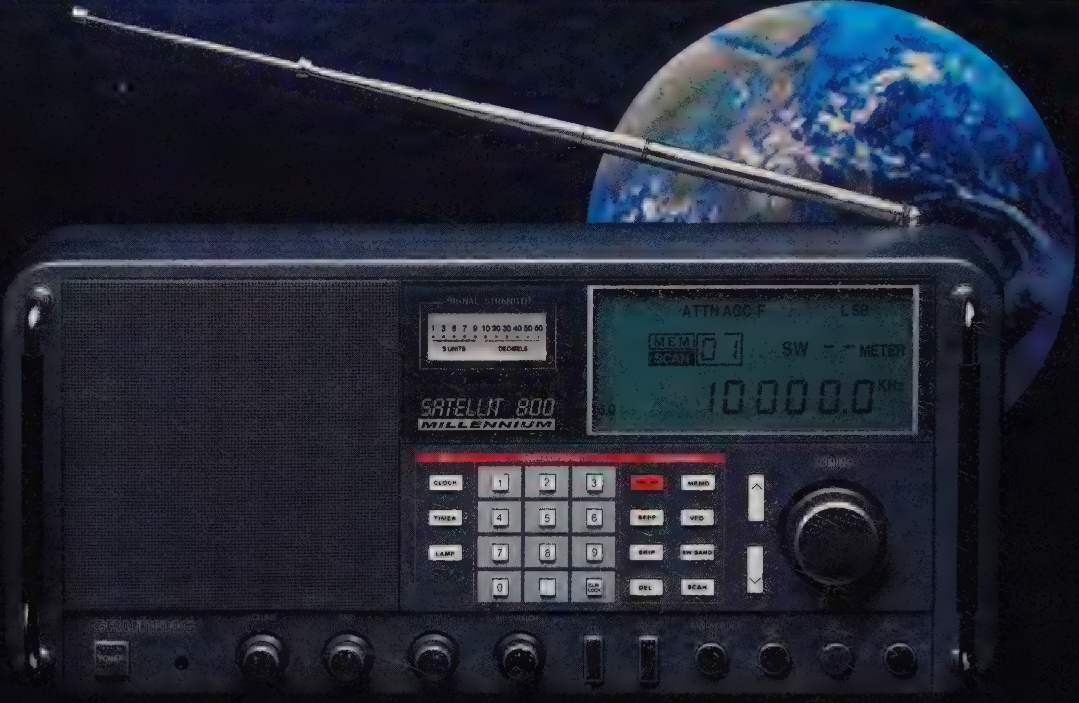
Listen to broadcasts from countries around the globe on all 13 shortwave international broadcast bands. Local AM and FM-stereo too. Fully digital PLL. Direct frequency entry. Auto scan. Push-button tuning. Clock. Sleep timer. 24 memories. Titanium color. Easy-read LCD. Display light. External SW antenna socket. Carrying strap. Includes AC adapter, case, earphones, batteries, supplementary SW antenna. Compact. One year warranty.
Dimensions: 5.75" L x 3.5" H x 1.25" W.
Weight: 12 oz.

by **GRUNDIG**

Lextronix / Grundig, P.O. Box 2307, Menlo Park, CA 94026 • Tel: 650-361-1611 • Fax: 650-361-1724
Shortwave Hotlines: (US) 1-800-872-2228 (CN) 1-800-637-1648 • Web: *www.grundigradio.net*

Today the World...
Tomorrow the
Universe
SIGNAL STRENGTH
SATELLIT 800
MILLENNIUM
ATTN AGC F
LSB
MEM
SCAN
01
SW
METER
10000.0 KHz
GRUNDIG

Today the World... Tomorrow the Universe



The wait is over. The millennium begins. The legend continues.

Whether you're an experienced shortwave listener or a newcomer wanting to start out with the very best, the Satellit Millennium is the radio for you.

The unparalleled legacy of the Grundig Satellit series of shortwave receivers continues with the new Satellit 800 Millennium. In the history of shortwave receivers, no other manufacturer has maintained a continuously evolving series of high-end portable radios, decade after decade. The pinnacle of over three decades of evolution, the Satellit 800 Millennium embodies the dreams and wishes of serious shortwave listeners the world over.

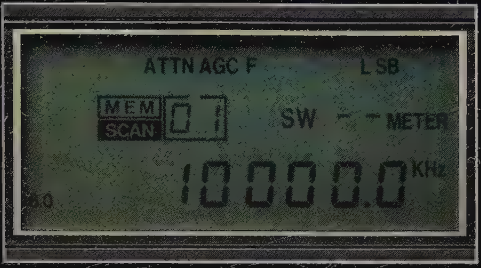
The legend began in 1964 with the introduction of the Grundig Satellit 205/ Transistor 5000, at that time, the most technologically advanced portable ever engineered for the non-military market. Incorporating the latest in solid state transistor technology, dual conversion super-heterodyne design and the first ever optional SSB module in a portable, this beginning of a legendary tradition led to generation after generation of Satellit series radios, all becoming coveted collector's items.

The Legend. The History. The Pride.
The Satellit 800 Millennium continues the tradition. Our goal was to create the dream. We listened to shortwave enthusiasts from every part of the globe who owned Grundig and other brands. We listened to what they wanted in a high-end shortwave portable: A big, easy to read, beautifully lit display. A large, traditional analog signal strength meter. A tuning knob they could really get a grip on. The option of push-button tuning and direct frequency entry. A tuner with absolutely no audible muting during tuning knob use. We listened. It's here.
The Dream. The Legend. The History.
The Tradition.

The Satellit 800 Millennium.

The Ultimate in Digital Technology

Satellit 800 Millennium Features



The LCD

Big! Bold! Brightly Illuminated 6" by 3½". Liquid Crystal Display shows all important data: Frequency, Meter band, Memory position, Time, LSB/USB, Synchronous Detector and more.

The Signal Strength Meter

SIGNAL STRENGTH
1 3 5 7 9 10 20 30 40 50 60
S UNITS
DECIBELS
SATELLIT 800
MILLENNIUM

Elegant in its traditional Analog design, like the gauges in the world's finest sports cars. Large. Well Lit. Easy to read.

The Frequency Coverage

Longwave, AM and shortwave: continuous 100-30,000 KHz. FM: 87-108 MHz VHF Aircraft Band: 118-137 MHz.

The Tuning Controls

- For the traditionalist: a smooth, precise tuning knob, produces no audio muting during use. Ultra fine-tuning of 50Hz on LSB/USB, 100Hz in SW, AM and Aircraft Band and 20 KHz in FM.
- For Fixed-step Tuning: Big, responsive Up/Down tuning buttons.
- For direct frequency entry: a responsive, intuitive numeric keypad.

MEMO
VFO
SW BAND
SCAN

THESE ARE THE SATELLIT 800 MILLENNIUM'S MAJOR FEATURES.
FOR A DETAILED SPECIFICATION SHEET, CONTACT GRUNDIG.

1
2
3
4
5
6
7
8
9
0
.
CLR/LOCK

STORE
MEMO
BEEP
VFO
SKIP
SW BAND
DEL
SCAN

The Operational Controls

Knobs where you want them; Buttons where they make sense. The best combination of traditional and high-tech controls.

The Sound

Legendary Grundig Audio Fidelity with separate bass and treble controls, big sound from its powerful speaker and FM-stereo with the included high quality headphones.

The Technology

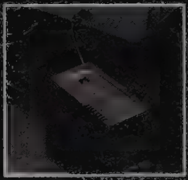
Today's latest engineering:

- Dual conversion superheterodyne circuitry.
- PLL synthesized tuner.

The Many Features

- 70 user-programmable memories.
- Two, 24 hour format clocks.
- Two ON/OFF sleep timers.
- Massive, built-in telescopic antenna.
- Connectors for external antennas – SW, AM, FM and VHF Aircraft Band.
- Line-out, headphone and external speaker jacks.

The Power Supply



A multi voltage (110, 220V) AC adapter is included.
Also operates on 6 size D batteries. (not included)

Dimensions: 20.5" L x 9" H x 8" W

Weight: 14.50 lbs.

by GRUNDIG

Lextronix / Grundig, P.O. Box 2307, Menlo Park, CA 94026
Tel: 650-361-1611 Fax: 650-361-1724
Shortwave Hotlines: United States 1-800-872-2228 • Canada 1-800-637-1648
Web: www.grundigradio.net

Looking For DSP Performance?

Kenwood has a full line of "True" HF products ready to meet your current needs

The Kenwood Tradition Continues...

KENWOOD has been known for high performance products since 1946. Over the years, Kenwood has produced and distributed more HF Amateur radios than any other manufacturer worldwide. Beginning in the early 1970's the legendary TS-520S first appeared in the U.S.A., then other world class products followed. Over the years Kenwood has produced HF transceivers with unparalleled performance and reliability. Many of our HF models manufactured in the early 1970's are still in service today! Compare Kenwood HF audio performance against the competition. You'll understand why Kenwood is still #1 in "TRUE" HF performance.

TS-50S

- HF All Mode
- Rugged Compact Design
- Easy To Use
- Fuzzy Logic VFO
- Adjustable Power Output
- Auto Tuner Available

TS-570D(G)

- HF All Mode
- Built-In Antenna Tuner
- CW Auto Tune/Kenwood First
- 441 Combinations Of DSP Filtering
- RCP2 Computer Control*

TS-570S(G)

- HF All Mode w/6 Meters
- Built-In Antenna Tuner
- 46 Easy Menu Items
- DSP Plus SSB/CW Filter Opt.
- Voice Synthesizer Opt.

TS-870S

- HF All Mode
- True IF Stage DSP Noise Reduction
- 1st 100% Digital DSP Filtering System
- Logikey Electronic Keyer
- Built-In Antenna Tuner
- Beat Cancel

TS-950SDX

- HF All Mode
- #1 Contest HF With DSP
- Digital AF Filters
- 150 Watts Mos-Type FET Finals
- Dual Digital VFO's
- Built-In Power Supply

VC-H1

- SSTV Visual Communicator
- Use with any VHF/UHF/HF/UBZ

FREE
Operating Manuals
Via the
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High Performance Mobiles With Outstanding Audio!

Kenwood has long been known as the leader in mobile radio performance, features and value. Check them out today!

The Kenwood Tradition Continues...

KENWOOD has been known for high performance products since 1946. Kenwood mobile radios are famous for quality and dependability. Ease of operation and superior signal recognition over the air are longtime "known" Kenwood standards. Kenwood has always been known as the leader in dual-band and tri-band radio technology. Heavy-duty construction on the inside makes all Kenwood mobile radios stand up to years of shock and vibration in the toughest environments. Oversized heat sinks and high performance components make Kenwood's audio sound great even after long keydowns. Ask any Amateur service technician what radios are built the best from inside out!

TM-742AD

- 144/440 MHz + 3rd Band
- 1200/220/50 MHz Options
- Detachable 2 Piece Display/Controls
- Simultaneous Receive On All 3 Bands
- Cross Band Repeat / Remote Control

TM-V7A

- 144/440 MHz Operation
- Built-In Operation Manual
- Heavy Duty Heat Sink
- PC Programmable*
- Detachable Display & Control

TM-G707A

- 144/440 MHz Operation
- Large Alphanumeric Display
- PC programmable*
- Superior Internal Rejection
- Easy Operation

TM-261A

- 144 MHz Operation
- Mil Spec 810D Shock & Vibration
- Alphanumeric Display
- Direct Frequency Entry From Microphone
- Small Compact Design

TM-541A

- 1200 MHz Operation
- Backlit Multifunction Microphone
- Automatic Lock Tuning
- 10 Watts Power Output

TM-331A

- 220 MHz Operation
- Multi Scan Function
- 20 Programmable Memories
- Built-In Encoder

FREE Operating Manuals Via the *FTP site

VC-H1

SSTV Visual Communicator
Use with any
VHF/UHF/HF/UBZ

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A Handful Of Power And Performance

Kenwood HT's have outstanding audio and excellent IMD rejection. Easy to use and dependable!

The Kenwood Tradition Continues...

KENWOOD has been known for high performance products since 1946. Kenwood has a long heritage of handheld transceiver performance dating back 20 years. The TR-2400 was the first microprocessor controlled handheld, and the TH-21AT the first compact handheld of its kind ever produced. Today, Kenwood is known for its handheld models in the Amateur radio service as well as commercial radios for business/industry, police and fire depts. The new TH-D7A Data Communicator (with built-in TNC and APRS™ software, HF Sky Command and SSTV VC-H1 features) is a clear example of Kenwood's leadership in technology and design, with outstanding audio and intermodulation rejection!

TH-D7A

- 144/440 MHz Operation
- Built-In 1200/9600 TNC
- APRS™ Operating Software
- PC Programmable*
- Mil Spec 810 C/D/E
- Simultaneous Voice & Data

TH-G71A

- 144/440 MHz Operation
- PC Programmable*
- Mil Spec 810E, Water & Shock
- Wide Range Receiver
- Backlit Keypad

TH-79AKSS

- 144/440 MHz Operation
- Long Battery Life
- Built-In Operators Manual
- Alphanumeric Dot-Matrix Display
- HF Sky Command System

UBZ-LF14

- 14 FRS Channels
- Built-In CTCSS
- 2 Mile Range (Max)
- Flip Up Antenna
- Scramble Mode

TH-22AT

- 144 MHz Operation
- Compact Design
- Luminescent Keypad
- Long Battery Life
- Easy To Use

VC-H1

- SSTV Visual Communicator
- Use with any VHF/UHF/HF/UBZ

FREE
Operating Manuals
Via the
*FTP site

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Amateur Radio Products Group

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Kantronics HF & Packet Modems

A Tradition of Quality and Innovation

Remember "THE INTERFACE," the UTU, KPC-1, KPC-2, and the KAM? They were all Kantronics innovations.

The CW and RTTY programs written for the VIC-20, C-64, TI-99, and other computers, were embedded inside the our UTU using a custom microcomputer. This made it possible for any computer with a serial communications program to run CW or RTTY. Since that time, we've provided Pactor (1993) and G-TOR (1994) with our HF modems. We also pioneered personal packet mailboxes, amateur paging (1996), and incorporated advanced digipeating for APRS (1998) in our packet modems.

Here's the latest Kantronics lineup—the KPC-3 Plus, the KPC-9612 Plus, the KAM'98, and the the GPS Tracker—all descendants of those legendary products. These units feature the HC11 Motorola processor, more EPROM memory space, more RAM, digital drive control, and A/D inputs!

KPC-3 Plus This compact, low current TNC has become the work horse of packet radio today. It features multiple packet connects, digipeating for APRS operations, WEFAX reception, a GPS mode for tracking, personal packet mailbox, and more.

KPC-9612 Plus This TNC is the rapid delivery model, supporting 9600 baud and featuring both 1200 and 9600 packet ports, advanced APRS digipeating (APRS is a trademark of Bob Bruninga), optional (K-Net) networking, amateur beeper (paging), and more.

KAM'98 This great-grandson of the UTU features numerous outstanding modes and functions including CW, RTTY, AMTOR, Pactor, and G-TOR for HF digital operations. It also provides programmable MARK and SPACE tones, bargraph tuning for HF Ops, packet operation at both 300 and 1200 baud and a mailbox similar to the KPC-3 Plus. It's a great fit with the new 160M to 2M rigs, and it supports GPS operations.

GPS Tracker The Tracker combines a Garmin X12 GPS module, active antenna, and a KPC-3 Plus in a single package. For simultaneous tracking and two-way packet Ops, just connect the transceiver to one end and a laptop computer to the other.

Kantronics
785.842.7745
sales@kantronics.com

INTELLIGENT Universal Chargers

MAHA

"Your Supplier, Your Partner, Your Friend!"

MH-C777

Universal Charger & Conditioner for versatile charging for nearly all of your battery packs

- **Charge almost all of your NiCD & NiMH** battery packs for your handhelds, camcorders, cellular, and notebook computers.
- Auto 4.8V to 12V detection.
- Negative delta V driven **microprocessor** plus temperature probe.
- For **home and vehicle use.**
- **Car adapter included.**

MH-C888

Universal Drop-in Charger & Conditioner for convenient charging

- Support both NiCD and NiMH battery packs from 4.8V to 12V auto detection.
- **Drop-in design.**
- Informative **digital LCD.**
- **Universal** design using unique and convenient to install cup.
- FLEX negative pulse **extends battery life.**
- 1 & 3 cycle **conditioning.**
- PowerShare feature allow **hassle-free banking.**

MAHA

"Your Supplier, Your Partner, Your Friend!"

BATTERY PACKS

Ultra high capacity, memory free NiMH battery packs available in a wide selection

- Ultra high capacity
- **No memory** effect.
- Maha's legendary **quality.**
- Environmental friendly.
- Maintains full voltage during 80-90% of use.
- Full one-year limited warranty.
- **Great selections.**

MH-PB-39
1050mAh 9.6v For Kenwood TH-G71A / D7

MH-C204F

Rechargeable Consumer AA NiMH battery cells plus intelligent rapid charger & conditioner

- Maha Rechargeable Consumer AA NiMH battery cells have a **ultra high capacity of 1350mAh** 1.24V. Great for handheld radios, FRS, backups, digital cameras, radio controlled toys, etc.
- Compatible **rapid charger and conditioner,** MH-C204F, also available for 2 or 4 batteries.
  - Battery **charged in 1-3 hours.**
  - Two indepedent banks for 2 or 4 AA or AAA batteries.
  - **Automatic detection** plus trickle charge.

Maha Communications, Inc.
Amateur Radio Division
2841-B Saturn St. Brea, CA 92821
Tel: 1-800-376-9992 or 714-985-9132
Fax: 714-985-9221

View latest information online.

http://www.maha-comm.com/

RECHARGEABLE NiMH Batteries

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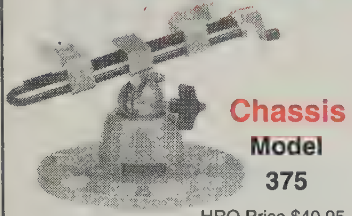
Vises

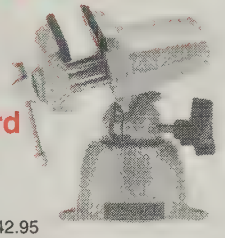
PANAVISE



Chassis
Model 375

HRO Price $40.95

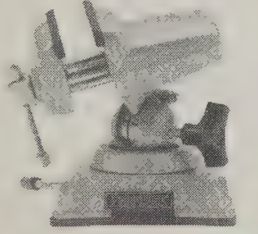
The specially created 345 Grooved Aluminum Chassis Jaws open a full 13" and hold chassis gently yet firmly for quick work at home. The 300 Standard Base provides the tilt, turn and rotate. Includes a set of 347 Extra Wide Opening Jaws.



Standard
Model 301

HRO Price $42.95

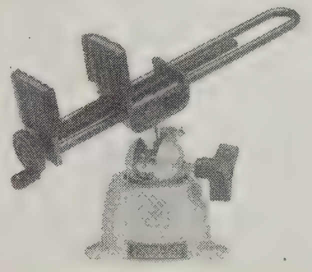
This all-purpose work holding unit is perfect for both industrial and home hobbyist applications. A single knob controls the tilt, turn and rotate function allowing the head to move easily through three planes. Features the 300 base, 303 Standard Head and 343 Nylon Jaws.



Vacuum Base
Model 381

HRO Price $54.95

The 381 Vacuum Base PanaVIse is a combination of the 380 Vacuum Base and the 303 Standard Head. This combination provides the tilt, rotate and turn versatility with the convenience of added portability. A half turn of the mount lever attaches or releases the powerful suction pad.

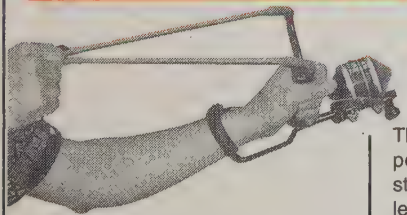


Wide Opening Head
Model 396

HRO Price $45.99

The versatility of the PanaVise product line is evident in this combination. It features the 366 Wide Opening Head with the 300 Standard Base. This wide head has full tilt, turn and rotate capabilities of the split ball.

Line Thrower



E Z HANG

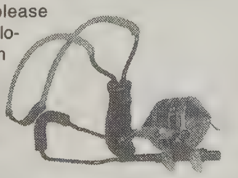
HRO Price 49.95

EZ HANG can be used to "throw" a line up to 100 feet over a tree or other object. Cable pullers can use EZ HANG to "throw" a line through a dropped-ceiling/plenum and avoid using long pull-rods. It cuts installation time and your cost dramatically.

EZ HANG's basic construction is steel attached to a reel that is corrosive resistant plastic and stainless steel.

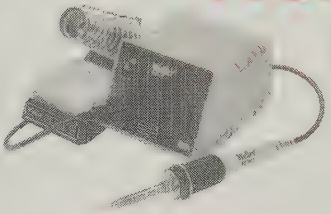
The reel comes with 300 feet of 10-pound-test monofilament line installed, a quick-disconnect clip to release the weight and an easy-to-see "bright yellow" one-ounce lead weight. Call HRO about replacement parts.

Note: This is a "slingshot" device. Before ordering, please check your local laws with respect to possession and/or use of a sling-shot.



Soldering Equipment

Weller®

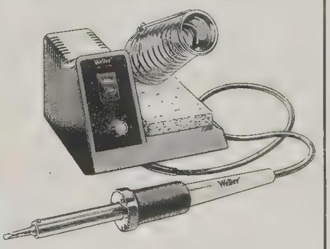


WTCPT
Soldering Station

HRO Price $99.95

Weller offers a soldering station that is a must for every ham shack.

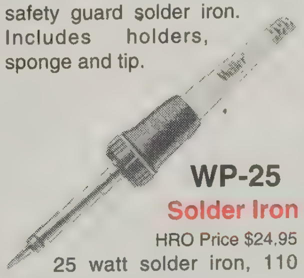
- Transformer powered with macro style, low voltage, temperature controlled soldering iron.
- Special "closed loop" method of controlling maximum tip temperature.
- Power unit housing features impact resistant plastic.
- Quick disconnect plug for iron and lighted on / off switch.
- Separate conductor grounds iron tip and terminates at third pin of power cord.
- Uses PT series tips and operates at 600°F, 700°F and 800°F.



WLC-100
Solder Station

HRO Price $44.95

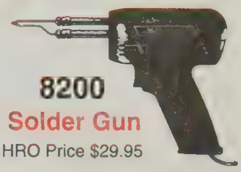
40 watt solder station, 110 volts. Adjustable 5-40 watts with safety guard solder iron. Includes holders, sponge and tip.



WP-25
Solder Iron

HRO Price $24.95

25 watt solder iron, 110 volts. Light weight handle with cushioned grip.



8200
Solder Gun

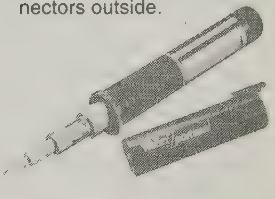
HRO Price $29.95

100/140W, 110 V. Ready to solder in 6 seconds. Finger tip selection of high/low power. Great for soldering coax connectors.

D650
Solder Gun

HRO Price $59.95

Solder gun, 200/300 watts. Great for soldering coax connectors outside.



PSI-100
Self-Igniting Portable Iron

HRO Price $49.95

Self-igniting portable butane heat tool that allows anti-static soldering. Provides up to 125 watts of power.

PSI-100K
Self-Igniting Portable Kit

HRO Price $79.95

A kit that contains the PSI-100, sponge, stand and extra tips in a plastic case.

RC60V
Lead-free Rosin Core Solder

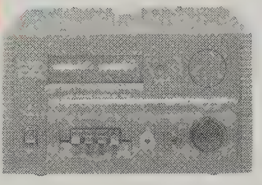
HRO Price $3.99

13 feet, 0.04 inches in diameter, active rosin core, lead free. In an easy to use dispenser tube.

POWER SUPPLIES

YAESU

Yaesu has power supplies primarily designed for use with their HF rigs. These include the **FP-712**, **FP-1023** and the **FP-1030A** and are low profile switching supplies.



FP-1030A

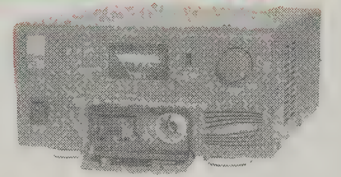
ICOM

The **PS-55** is a standard duty supply with cabinet styling to match IC-735 / 728 / 729. The heavy-duty **PS-30** station supply can operate several base station units. The **PS-35** is an internal suppply designed to be installed in the IC-751 or selected VHF / UHF base transceivers. The **PS-85** is specially designed for the IC-706 compact HF rig.

DIAMOND

NEW!

GZV4000 Switching Mode DC Power Supply



The GZV4000 switching mode DC power supply HAs a 40 amp continuous rating at 100% duty cycle. The supply has variable voltage from 5-15 VDC using a voltage control knob with a center detent at 13.5 VDC. There is overload and short circuit protection with current feedback at approximately 42 amps and temperature protection with a variable speed fan.An AC line filter provides EMI protection. The meter selector allows monitoring of voltage and current. Power and overload indicators are included. Connect your rig easily with front panel DC terminals and a cigarette lighter jack. The unit has in internal 8 ohm speaker. Operates on 120 VAC ± 20%, 50-60 cps. Ripple and noise is less than 8mV rms. **HRO Price: $199.95**

KENWOOD

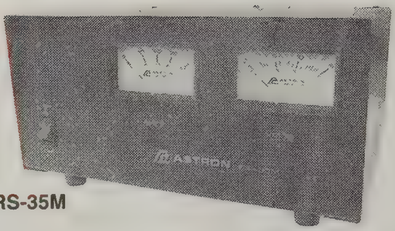
PS-40

The **PS-53** is disigned for use with the TS-570 D/S(G). The **PS-40** is a compact, switching supply for high current applications. It matches the TS-50. The **PS-52** is Kenwood's largest. It is designed for use with the TS-870 but it will run all Kenwood 12 VDC radios.

ALINCO

The **DM-340MVT** is a 35 amp supply with dual meters. Provides up to 30 amps. 110 VAC.

ASTRON CORPORATION



MODEL RS-35M

All of Astron's solid-state electronically regulated **Power Supplies** have fold-back current limiting to protect from excessive current and a heavy duty heat sink. Output voltage: 13.8 VDC ±.05 volts. 220 V supplies available on special order at slightly higher price.

RS-A Series Standard power supply with on / off switch. Voltage may be adjusted internally.

SL Series Slim Line design for low-profile looks.

RS-M Series Power supply with front meters. One is for voltage and the other current.

SS Series High efficiency switching supplies specially filtered for use with communications equipment for all frequencies including HF. Heavy duty design, low profile, light weight and EMI filter.

VS-M Series Variable power supplies with separate volt and amp meters. Adjustable output: 2-15 volts.

RM Series 19" x 5 1/4" rack-mount power supplies available with or without meters and may be variable. The new RM-60 comes with or without meters.

Power Supplies

Brand	Model	Cont.Duty 13.8 VDC	Intermit Duty	Height in	Width in	Depth in	Weight lbs	HRO Price
Alinco	DM-340MVT	30 A	35A	6	9.25	9	21	$159.95
Astron	RS-4A	3 A	4 A	3.75	6.5	9	5	$39.95
	RS-7A	5 A	7 A	3.75	6.5	9	9	$59.95
	RS-10A	7.5 A	10 A	4	7.5	10.75	11	$69.95
	RS-12A	9 A	12 A	4.5	8	9	13	$79.95
	RS-20A	16 A	20 A	5	9	10.5	18	$96.95
	RS-35A	25 A	35 A	5	11	11	27	$149.95
	RS-50A	37 A	50 A	6	13.75	11	46	$219.95
	RS-70A	57 A	70 A	6	13.75	13.75	48	$299.95
	RS-12M	9 A	12 A	4.5	8	9	13	$89.95
	RS-20M	16 A	20 A	5	9	10.5	18	$116.95
	RS-35M	25 A	35 A	5	11	11	27	$169.95
	RS-50M	37 A	50 A	6	13.75	11	46	$239.95
	RS-70M	57 A	70 A	6	13.75	12.12	48	$329.95
	RM-35A	25 A	35 A	5.25	19	12.5	38	$279.95
	RM-50A	37 A	50 A	5.25	19	12.5	50	$299.95
	RM-60A	50 A	55 A	7	19	12.5	63	$349.95
	RM-35M	25 A	35 A	5.25	19	12.5	38	$259.95
	RM-50M	37 A	50 A	5.25	19	12.5	50	$329.95
	RM-60M	50 A	55 A	7	19	12.5	63	$389.95
	VS-20M	16 A	20 A	5	9	10.5	20	$139.95
	VS-35M	25 A	35 A	5	11	11	29	$199.95
	VS-50M	37 A	50 A	6	13.75	11	46	$259.95
	SL-11A	7 A	11 A	2.75	7.62	9.95	11	$79.95
	SL-15R	12 A	15 A	2.75	7.62	9.95	14	$109.95
	SS-10	7 A	10 A	1.125	6	9	3.2	$80.95
	SS-12	10 A	12 A	1.375	6	9	3.4	$89.95
	SS-18	15 A	18 A	1.375	6	9	3.6	$99.95
	SS-25	20 A	25 A	2.875	7	9.375	4.2	$119.95
	SS-30	25 A	30 A	3.75	7	9.625	5	$129.95
Diamond	GZV4000	40 A					8	$199.95
Icom	PS-30	20 A	25 A	4.3	9.5	11.8	15.6	$499.95
	PS-35	17 A	20 A	*	*	*	6	$299.95
	PS-85	15 A	20 A					$269.95
Kenwood	PS-40	20 A	23 A	2.38	7.1	8.88	4.5	$199.95
	PS-52	22.5 A	22.5 A	4.25	7	12.25	16	$279.95
	PS-53	22.5 A	22.5 A	6.81	3.78	11.66	15.2	$229.95
Samlex	SEC1212	10 A	12A	2.2	7	8.25	3	$79.95
	SEC1223	23 A	24 A	2.2	7	8.25	4	$99.95
Yaesu	FP-712	10 A	12 A	2.25	6	8.25	2.6	$129.95
	FP-1023	23 A		2.25	6	8.25	4.2	$129.95
	FP-1030A	25 A	30 A					$239.95

* Internal Supply

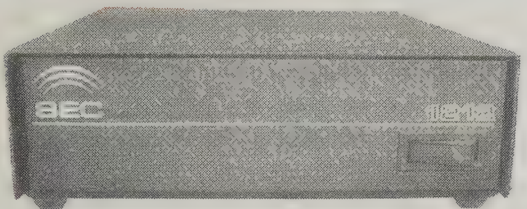
(220 volt versions of some models available at additional cost by special order. Contact HRO for details.)

POWER SUPPLIES

SAMLEX AMERICA®

For Base Stations

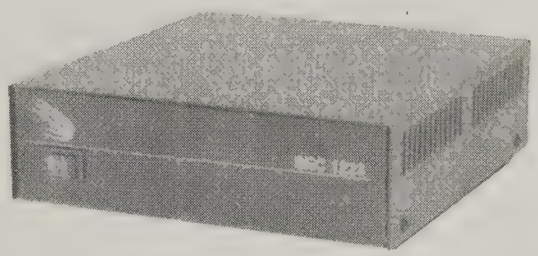
Switching Mode Power Supplies



SEC-1212

The SEC-1212 was designed specifically for use as a land mobile base station power supply. It uses Mosfet based switch mode technology for high reliability, high efficiency and minimum size and weight. The design reduces output ripple to levels previously available only from bulky, less efficient linear power supplies. It delivers high power with low RFI when used with HF, VHF, and UHF radios. Current limiting and safe operating area circuitry protects devices powered by the SEC-1212 from excess voltage. The supply operates from 100-130 or 200-260 volts and produces 10 Amps continuously, 12 Amps at 50% duty cycle for 5 minutes. Weight is only 3 pounds. UL and cUL approved. Complies with FCC Class B Part 15. 3 year manufacturer's warranty. **HRO Price $79.95**

SEC-1223



Same cabinet size as the SEC-1212, this model provides 23 Amps continuous output power, 24 Amps 50% Duty Cycle and is highly filtered to provide clean power to HF, VHF, and UHF radios. The SEC-1223 features a thermally activated cooling fan. It is UL and cUL listed. 3 year manufacturer's warranty. **HRO Price $89.95**

Rack Mounts

SEC-1223-R1

Industry proven SEC-1212 and SEC-1223 regulated DC power supplies are now available in 3.5" by 19" rack mount versions. All are UL and cUL Listed. 3 year manufacturer's warranty.

Model	Continuous Output Power (amps)	50% Duty Cycle (amps)	HRO Price
SEC-1212-R1	10	12	$119.95
SEC-1223-R1	23	24	$129.95
SEC-1223-R2*	23	24	$229.95

* One rack holding 2 SEC-1223, 23 amp power supplies

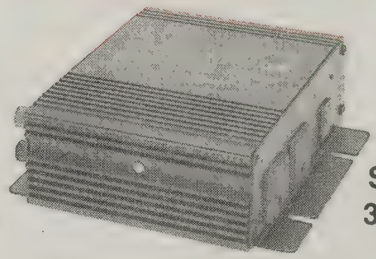
Compact Multi-purpose

Compact Switching Power Supply

SPS-1204UL

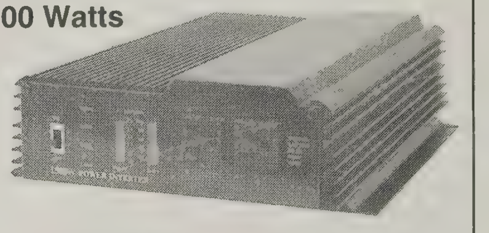
The SPS-1204UL is a compact 3.5 amp switching power supply with a cigarette lighter output socket in the front and a terminal output block at the back. Ideal for electronic projects, cellular phones and general applications. UL and cUL listed. **HRO Price $29.95**

Power Inverters



SI-300HP
300 Watts

PSE-12150A
1500 Watts



12 Volt DC - 115 Volt AC Power Inverters

Samlex DC-AC inverters convert 12V DC batter power into 115V AC household power. Samlex Inverters are industry proven and are fully protected. 1 year manufacturer's warranty.

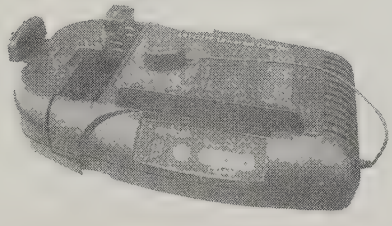
Model	Continuous Output Power (watts)	Maximum Surge Power (watts)	HRO Price
SI-50HP	50	50	$39.95
SI-140HP	140	300	$59.95
SI-300HP	300	600	$79.95
PSE-1260A	600	1000	$149.95
PSE-1000A	800	1500	$329 95
PSE-1500A	1200	2500	$499.95
PSE-2500A	2400	4500	$799.95

BATTERY PACKS / CHARGERS

Consumer NiMH Batteries

New ultra-high capacity, memory-free NiMH battery technology now available in AA size.
AA-T 1300 mAh 1.2 V AA
HRO Price $2.99

Universal Chargers and Conditioners

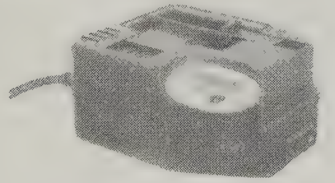


MH-C777

Charge almost any of your ham radio, camcorder, cellular and other NiCD/NiMH battery packs!

- Rapid charger plus conditioner.
- Automatic trickle charge.
- -dV and temperature protection.

HRO Price $49.95



MH-C888

Universal drop-in charger for your handheld radio.

- Rapid charger plus conditioner.
- PowerShare allows you to connect multiple chargers on one outlet.
- Universal dop-in design with special adapter plate.
- Large LCD Display.

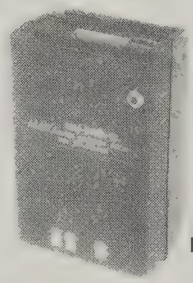
HRO Price $59.95

MH-C204F Charger / Conditioner

Now you can charge up and condition your AA/ AAA NiCD and NiMH consumer batteries in just 1 to 3 hours. **HRO Price $24.95**

MH-C124S Charger

Standard charge unit for AA / AAA NiCD and NiMH consumer batteries.
HRO Price $9.95



Nickel Metal Hyride Replacement Battery Packs

MH-FNB-12

Maha Nickel Metal Hydride battery packs provide high capacity and memory-free performance for your handheld. Maha legendary quality ensures durable performance for many years.

Standard Packs

Model	Volts (DCV)	Capacity (mah)	HRO Price
MH-CNB-152	12	1000	$59.95
MH-CNB-153	7.2	1200	$49.95

Icom Packs

Model	Volts (DCV)	Capacity (mah)	HRO Price
MH-BP-7	13.2	1000	$69.95
MH-BP8	8.4	1200	$59.95
MH-BP-8H*	8.4	1800	$69.95
MH-BP-83	7.2	1200	$49.95
MH-BP-132B	12	1200	$59.95
MH-BP-132G	12	1200	$59.95
MH-BP-173	9.6	650	$69.95
MH-BP-180	7.2	1000	$49.95
MH-BP-199 **New** for T8A	6	700	$55.95
MH-BP-200 **New** for T8A	9.6	680	$59.95

Maha Accessories

Model	Description	HRO Price
MHS-V47BC	Sping loaded belt clip for HM-FNB-41 & V47	$9.95
MHS-CPB3	PL-259 to BNC 50 Ohm patch cable to connect HT to amp. 1 meter long	$8.90
MHS-Y3	MH-A301 & 302 adapter for Yaesu FT-51R	$9.95
MHS-Y4	MH-A301 & 302 adapter for Yaesu FT-50R	$9.95
MHS-I4	MH-A301 & 302 adapter for Icom T7/T22/T42/ Z1A/W31/W32	$9.95

Yaesu Packs

Model	Volts (DCV)	Capacity (mah)	HRO Price
MH-FNB-12	12	1000	$59.95
MH-FNB-17	7.2	1000	$49.95
MH-FNB-27	12	1000	$59.95
MH-FNB-31	4.8	650	$49.95
MH-FNB-38	9.6	650	$59.95
MH-FNB-40H	7.2	650	$59.95
MH-FNB-41	9.6	1000	$55.95

Kenwood Packs

Model	Volts (DCV)	Capacity (mah)	HRO Price
MH-KNB-12M	7.2	1300	$49.95
MH-KNB-15M	7.2	1500	$49.95
MH-PB-8	12	1300	$62.95
MH-PB-17	12	1300	$69.95
MH-PB-18	7.2	1300	$49.95
MH-PB-32	6	1000	$47.95
MH-PB-34	9.6	1000	$57.95
MH-PB-39 **New** for G71A	9.6	1050	$59.95
MH-PB-39H **New** for G71A	6	1800	$59.95

Motorola Packs

Model	Volts (DCV)	Capacity (mah)	HRO Price
MH-8148M for P110	7.5	1500	$49.95
MH-9360M for GP330	7.5	1300	$49.95
MH-9628M for GP300	7.5	1300	$49.95

Power Station

PREMIER
communications

GEL Cell Battery System SB-752

Premier's GEL Cell battery system operates independent of AC power. It is perfect for operating low amperage equipment such as the new, low voltage handhelds. The SB-752 produces 12 VDC at a 7 amp hour rating. The power is switchable between 3, 5, 9 and 12 VDC. The unit includes a built-in DC volt meter. Charge the SB-712 with AC or DC current. **HRO Price $59.95**

SB-852

The same as the SB-752 except comes with cable clamps for charging or attaching onto studs. Will NOT charge off 12 volts.
HRO Price $59.95

Advanced Battery Systems

NiCD Batteries

NiCD replacement battery packs are available for all popular handhelds. Super (S) models offer additional operating time when compared to manufacturer-provided batteries. Depending on the battery model and radio, an additional 15 - 100% operating time can be achieved.

Alinco Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
EBP-22S	12	1200	$65.95
EBP-24S	7.2	1700	$62.95
EBP-34	8.4	1200	$35.00
EBP-34S	4.8	1700	$49.00
EBP-35	7.2	900	$50.00
EBP-36	9.6	650	$55.00

Icom Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
BP-7S	13.2	1200	$65.95
BP-8S	9.6	1700	$65.95
BP-83S	7.2	1200	$43.95
BP-84S	7.2	1700	$63.95
BP-85S	12	1200	$76.95

Kenwood Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
PB-7S	7.2	1700	$59.95
PB-8S	12	1200	$59.95
PB-13S	7.2	1200	$49.95
PB-14S	12	400	$60.95
PB-17	12	1200	$49.95
PB-18	7.2	1700	$49.25
PB-33	6	1200	$49.00
PB-34	9	600	$54.00

Yaesu Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
FNB-12	12	600	$54.95
FNB14S	7.2	1700	$59.95
FNB-26S	7.2	1700	$65.95
FBN-27S	12	1200	$65.95
FNB-33	4.8	1700	$53.25
FNB-35	7.2	600	$49.95
FNB-38	9.6	650	$66.90
FNB-40	6	600	$40.95
FNB-47	7.2	1200	$50.95
FNB-49	7.2	600	$45.95

Lithium Ion Batteries

Lithium ion battery packs for selected radios weigh less, have high capacity, and zero memory effect. You can charge these batteries with your regular charger.

Model	Volts (DCV)	Capacity (mah)	HRO Price
BP-84SL	7.2	1500	$99.95
EBP-24L	7.4	1500	$99.95
EBP-35L	7.2	900	$99.95
FNB-26L	7.2	1500	$99.95
FNB-14L	7.2	1500	$99.95
PB-13SL	7.4	1500	$99.95
MH-PB-8	7.4	1500	$99.95

NiMH Batteries

Advanced Battery Systems also makes environmentally friendly Nickel-Metal Hydride battery packs. Each battery is equipped with short circuit and over charge protection. NiMH batteries do not develop the permanent "memory effect" often associated with NiCDs. NiMH chemistry has much higher capacity per volume and weight than NiCD chemistry. There are NiMH replacement packs for most popular handhelds.

Alinco Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
EBP-22SM	12	1500	$65.00
EBP-24SM	7.2	2450	$60.00
EBP-34M	4.8	2450	$65.00

Icom Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
BP-7M	13.2	900	$69.00
BP-7SM	13.2	2450	$75.00
BP-8M	8.4	2450	$69.00
BP-83M	7.2	1500	$50.00
BP-84SM	7.2	2450	$60.00
BP-85SM	12	1500	$75.00

Kenwood Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
PB-7SM	7.2	2450	$65.00
PB-8SM	12	1500	$62.00
PB-13SM	7.2	1500	$50.00
PB-14SM	12	600	$50.00
PB-17M	12	1500	$69.00
PB-18M	7.1	2450	$55.00
PB-33M	6	2150	$49.00
PB-34M	9.6	900	$57.00
PB-39M	9.6	1050	$50.00
PB-39MH	6	1800	$50.00

Standard Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
CNB-152M	12	900	$69.00
CNB-153M	7.2	1500	$49.00

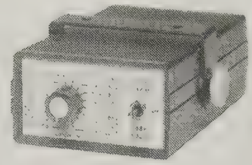
Yaesu Radios

	Volts (DC)	Capacity (mah)	HRO Price
FNB-11M	12	1500	$59.00
FNB-25M	7.2	900	$50.00
FNB-26SM	7.2	2450	$64.00
FNB-27M	12	900	$59.00
FNB-27SM	12	1500	$59.00
FNB-33M	4.8	2450	$49.00
FNB-35M	7.2	900	$65.00
FNB-38M	9.6	900	$75.00
FNB-41M	9.6	900	$55.00
FNB-47M	7.2	1800	$75.00

Encoders / Decoders

COMMUNICATIONS SPECIALISTS, INC.

Tone encoders and decoders are just what you need to control your repeater or listen only to signals that are meant just for you.



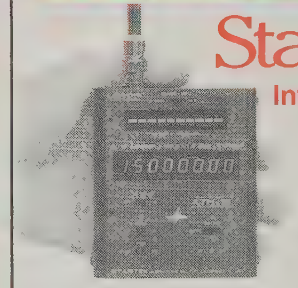
TE-32 CTCSS Encoder

The TE-32 multi-tone CTCSS encoder is perfect for mobile operations or the test bench. It is powered by an 6 to 28 vdc unregulated source. It has a three position range switch and a frequency accuracy ±0.1 Hz maximum over the temperature operating range. The TE-32 is low impedance (1K), low distortion, with adjustable sine wave output, 5 V peak to peak. **HRO Price $49.95**

	Encode	Decode	Comments	HRO Price
TS-64DS	*	*	Universal design, CTCSS encoder / decoder capability for all FM transceivers	$57.95
SS-64	*		DIP switch programmable CTCSS encoder for all FM transceivers	$28.95
TE-32	*		Multi-purpose CTCSS / Burst Tone encoder	$49.95

Frequency Counters

Startek International



Startek's ATH™ series brings you auto trigger and hold in a pocket-sized frequency counter. Super fast circuitry reads and holds a signal in less than one-tenth of a second.

Model	Description	HRO Price
ATH30	1-2800 MHz high speed with ATH	$229.95
ATH50	ATH-30 plus Hi-Z input 5 Hz to 48 MHz	$279.95

AMPLIFIERS

HF Amplifiers

SGC

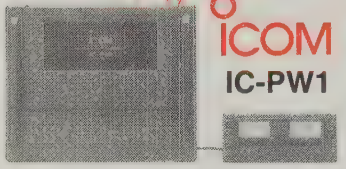
SG-500

$1199.95 – HRO Price

The SmartPowerCube produces tremendous power–nearly as much as a 1 KW amplifier–yet it requires less than one cubic foot of space. Electronic brain power makes it possible. The SG-500 is an intelligent, microprocessor controlled, high-powered linear amplifier, designed with high efficiency transistors. It constantly monitors your HF-SSB's activities, power needs, and antenna condition, and automatically–in less than 15 milliseconds–selects the right broadband filter. It can reliably produce, essentially unattended, in the most demanding conditions. Power supply required. SGC PS50 recommended to guarantee specifications. **Export or domestic versions available.**

HF + 6m Amplifier

HRO
Discount Price
$4799.95



ICOM

IC-PW1

w/ Solid State Remote Control Head

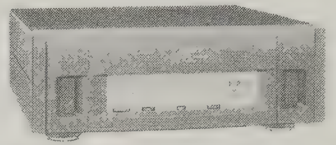
Icom's linear amp provides wide frequency coverage with up to 1kW output requiring only a 100-watt maximum input. The duty cycle is 100 percent with full break-in operation. It covers amateur bands 160 meters to 15 meters plus 6 meters. Includes an automatic antenna tuner for all bands. Internal circuitry allows the ALC to be adjusted over a wide range so the PW1 to be used with almost any rig, not just Icom. Operates on 110 or 220 VAC 50 or 60 cycle.

YAESU

Quadra System

$3999.95

HRO Price



Here's all the linear amplifier you should need for operation on both HF (160 to 15 meters) and 6 meters. It provides automatic band switching with the FT-1000D, FT-1000MP, FT-920, FT-990, and the FT-900 HF radios.

The amp has 8 MRF150 power MOSFet transistors designed into 4 units of 2 transistors in a push-pull circuit at 48 VDC. The separate power supply, the VP-1000 allows for easy installation. There are two input voltages, 117 VAC or 220 VAC. Output power is a function of the power supply voltages. At 220 VAC there is 1000 watts out on HF and 500 watts on 6 meters. At 117 VAC the output is reduced to 500 watts on HF.

The amplifier comes equipped with a built-in high speed antenna tuner to match the amp to your antennas. It has four antenna outputs and two inputs. The multifunction omni-glow LCD display shows the status of the amplifier. There is automatic system monitoring with VSWR protection.

Patch Cables

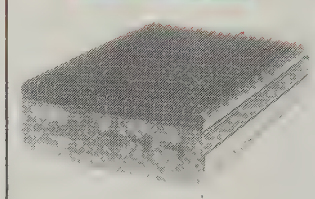
VAN GORDEN

Use Van Gorden Patch Cables to connect your amp to your rig. They are made from RG-8X coax with silver teflon PL-259 connectors. Use the longer cables for antenna runs.

Model	Length (feet)	HRO Price
8X-1.5ST	1.5	$6.99
8X-3ST	3	$8.99
8x-6ST	6	$11.99
8X-12ST	12	$14.95
8X-18ST	18	$18.95
8X-25ST	25	$24.95
8X-50ST	50	$29.95
8X-100ST	100	$49.95

VHF / UHF Amps

MAHA



MH-A104

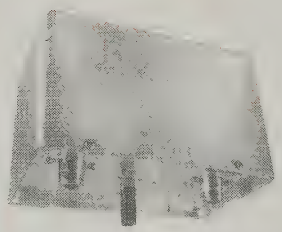
Maha has a line of compact amplifiers for 2m / 70cm single and dual-band use. Their low noise GaAsFET pre-amps will help you receive better and hit repeaters more easily.

While using Maha's docking boosters for your handhelds, there is no need for a battery pack. The booster will power your radio while it boosts the transmission and receive.

The MH-A104 amplifier supports both SSB and FM modes. The output power is adjustable 10 to 100 W with a +5 to +15 dB adjustable receiver pre-amplifier. More amps and docking boosters are listed on page 73.

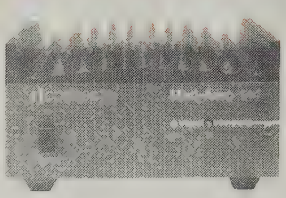
VHF / UHF Preamps

AMPIRE



Ampire's low noise pre-amplifiers for VHF and UHF automatically switch from receive to transmit whenever the transmitter is keyed. In receive mode they feature a helical filter with a narrow bandpass.In case of power loss, the relay will drop out of the transmit mode.

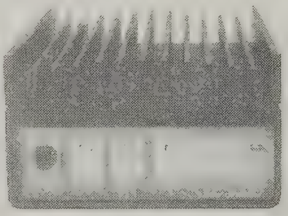
rfconcepts



The MINI amps are perfect for use with HTs. Here's that "extra punch" needed for distant contacts.

Mini-Amp 144P 2-meter HT amp features 1 to 6 watts in and gives 20 to 30 watts out. **HRO Price $129.95**

Mini-AMP 440P 70-cm HT amp with 1 to 6 watts in. Two watts in gives 20 watts out. **HRO Price $159.95**



The MAX-amp series is computer designed and features directional couple keying, VSWR protection, and temperature protection.

MaxAmp 10 2-meter power amp has ten watts in and 160 watts out. Also features directional coupler VSWR and temperature protection. **HRO Price $329.95**

MaxAmp 45 2-meter power amp features 40 watts in and 160 watts out. Also has directional coupler VSWR and temperature protection. **HRO Price $299.95**

RFC-4-110 70-cm power amp features ten watts in and 100 watts out. **HRO Price $359.95**

RFC-4-310 70-cm power amp features 30 watts in and 100 watts out. Includes a receive preamp. **HRO Price $349.95**

HRO will provide 10 meter modification information to amplifier customers upon receipt of a copy of your valid, current amateur radio license.

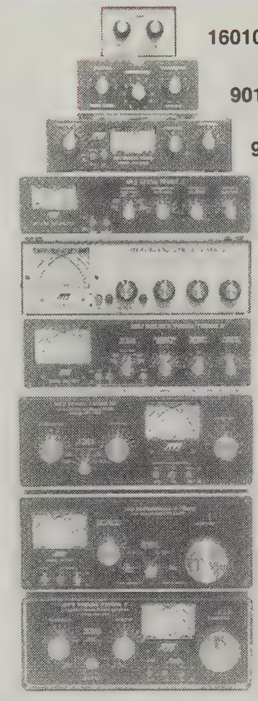
AMPLIFIERS

Maker	Model	Frequency Range	Modes	Power In	Power Out	Voltage	Current	Pre-amp	Connector	Wgt	HRO Discount Price
Ameritron	AL-1500	160-15 M*	SSB. CW	65 W	1500+ W	220 VAC	15 A	–	SO-239	50 lbs#	$2,499.95
	AL-1200	160-15 M*	SSB. CW	100 W	1500 W	220 VAC	15 A	–	SO-239	50 lbs#	$2,099.95
	ALS-500M	160-15 M*	SSB. CW	100 W	500 W	13.8 VDC	80 A	–	SO-239	7 lbs	$689.95
	AL-572	160-15 M*	SSB. CW	100 W	1300 W	110/220 VAC	12 A 110V		SO-239		$1,299.95
	ALS-600	160-15 M*	SSB. CW	100 W	600 W	110/220 VAC	16 A 110V	–	SO-239	13 lbs#	$1,099.95
	AL-80B	160-15 M*	SSB, CW	100 W	1000 W	110/220 VAC	15/10 A	–	SO-239	54 lbs	$1,199.95
	AL-800	160-15 M*	SSB, CW	100 W	750 W	110 VAC	12 A	–	SO-239	67 lbs	$1,499.95
	AL-800H	160-15 M*	SSB, CW	55 W	1500 W	240 VAC	9 A	–	SO-239	69 lbs	$2,199.95
	AL-811	160-15 M*	SSB, CW	75 W	600 W	110/220 VAC	8/4 A	–	SO-239	40 lbs	$629.95
	AL-811H	160-15 M*	SSB, CW	75 W	800W	110/220 VAC	8/4 A	–	SO-239	41 lbs	$749.95
	AL-82	160-15 M*	SSB, CW	100 W	1500 W	220 VAC	15 A	–	SO-239	52 lbs#	$1,999.95
Icom	IC-PW1	160-15 M*	SSB, CW	100 W	1000 W	110/220 VAC		–	SO-240	55 lbs	$4,999.95
Maha	MH-A101	144-148 MHz	SSB/FM	5 W	35 W	13.8 VDC		–	SO-239		$69.95
	MH-A102	144-148 MHz	SSB/FM	5 W	35 W	13.8 VDC		yes	SO-239		$89.95
	MH-A103	144-148 MHz	SSB/FM	5 W	50 W	13.8 VDC		yes	SO-239		$109.95
	MH-A104	144-148 MHz	SSB/FM	5 W	10-100 W	13.8 VDC		yes	SO-239		$209.95
	MH-A201	144-148/430-450	SSB/FM	5 W	45 / 35 W	13.8 VDC		–	SO-239		$149.95
	MH-A301 Booster	144-148 MHz	SSB/FM	5 W	50 W	13.8 VDC		yes	SO-239		$109.95
	MH-A302 Booster	144-148/430-450	SSB/FM	5 W	45 / 35 W	13.8 VDC		yes	SO-239		$149.95
Mirage	A -1015G	50-54 MHz	All	10 W	150 W	13.8 VDC	23 A	yes	SO-239	5 lbs	$359.95
	B-34	144-148 MHz	FM	2 W	35 W	12-15 VDC	4 A		SO-239	2 lbs	$69.95
	B-34G	144-148 MHz	FM	2W	35 W	12-15 VDC	4 A	yes	SO-239	2 lbs	$89.95
	BD-35	143-149/430-450	FM	7 W	45 W	12-15 VDC	7 A		SO-239	3 lbs	$149.95
	B-215G	144-148 MHz	All	2 W	150 W	13.8 VDC	20 A	25 dB	SO-239	5 lbs	$309.95
	B-310G	144-148 MHz	All	4 W	100 W	13.8 VDC	15 A	yes	SO-239		$189.95
	B-1016G	144-148 MHz	All	10 W	160 W	13.8 VDC	25 A	10 dB	SO-239	5 lbs	$349.95
	B-1030G	144-148 MHz	All	10 W	300 W	13.8 VDC	48 A	yes	SO-239		$649.95
	B-2516G	144-148 MHz	All	25 W	160 W	13.8 VDC	25 A	10 dB	SO-239	5 lbs	$289.95
	B-2530G	144-148 MHz	All	25 W	300 W	13.8 VDC	48 A	yes	SO-239	15 lbs	$649.95
	B-5016G	144-148 MHz	All	50 W	160 W	13.8 VDC	24 A	yes	SO-239		$289.95
	B-5030G	144-148 MHz	All	50 W	300 W	13.8 VDC	48 A	yes	SO-239		$629.95
	C-22G	222-225 MHz	All	2 W	20 W	13.8 VDC	5 A	yes	SO-239	2 lbs	$159.95
	C-211G	222-225 MHz	All	2 W	110 W	13.8 VDC	20 A	yes	SO-239	5 lbs	$299.95
	C-106G	222-225 MHz	All	10 W	60 W	13.8 VDC	12 A	yes	SO-239	4 lbs	$219.95
	C-1012G	222-225 MHz	All	10 W	120 W	13.8 VDC	5 A	yes	SO-239	5 lbs	$329.95
	C-2512G	222-225 MHz	All	25 W	120 W	13.8 VDC	20 A	yes	SO-239	5 lbs	$299.95
	C-2522G	222-225 MHz	All	30 W	200 W	13.8 VDC	42 A	yes	SO-239		$639.95
	D-15N	425 - 450 MHz	All	2 W	15 W	13.8 VDC	3 A	–	N type		$169.95
	D-26N	430-450 MHz	All	2 W	60 W	13.8 VDC	12 A	–	N type	2 lbs	$259.95
	D-1010N	430-450 MHz	All	10 W	100 W	13.8 VDC	20 A	–	N type	5 lbs	$369.95
	D-3010N	430-450 MHz	All	30 W	100 W	13.8 VDC	20 A	–	N type		$329.95
	D-100-ATVN	429 MHz ATV	All	1 W	52 W	13.8 VDC	20 A	–	N type		$379.95
	D-1010-ATVN	430 MHz ATV	All	10 W	100 W	13.8 VDC	20 A	–	N type		$379.95
RF Concept	MAXAMP-10	144-148 MHz	All	10 W	150+ W	13.8 VDC		yes			$329.95
	MAXAMP-45	144-148 MHz	All	45 W	150+ W	13.8 VDC		yes			$299.95
	MINAMP-144P	144-148 MHz	FM	3 W	30 W	13.8 VDC		yes			$114.95
	MINAMP-440P	430-450 MHz	FM	2 W	20 W	13.8 VDC		yes			$149.95
	4-310	420-450 MHz	All	.2-40 W	(30in)100 W	13.8 VDC	20 A	12 dB	N type	5 lbs	$349.95
	4-110	420-450 MHz	All	.2-15 W	(10 in) 100 W	13.8 VDC	22 A	12 dB	N type	5 lbs	$359.95
SGC	SG-500	Export or Domestic	SSB,CW		500 W	13.8 VDC	**				$1,199.95
Yaesu	Quadra System	160-15 M*+ 6m	SSB, CW	100 W	1000 W	110/220 VAC	†	–	SO-239	33 lbs	$3,999.95

* Owner modifiable for 10 m # Add 35 pounds for transformer shipped in separate package. ** SGC PS-50 recommended † VP-1000 power supply included

MFJ

HF Tuners



MFJ-16010 Random Wire Tuner for all bands anywhere. 1.8-30 MHz. Turn any random wire into a transmitting antenna. Also for apartment, motel, camping. 200 watts. *HRO Price $49.95*

MFJ-901B Versa Tuner, our smallest, most affordable 200 watt tuner is good for matching solid state rigs to linears within limited space and budget. 1.8-30 MHz, 4:1 balun. *HRO Price $69.95*

MFJ-903 6M Tuner 50-54MHz. *HRO Price $49.95*

MFJ-903 6M Tuner/Wattmeter 50-54MHz. *HRO Price $79.95*

MFJ-945E Mobile Tuner This mobile tuner extends antenna bandwidth and eliminates the need to stop, go outside to readjust your mobile whip. Cross-needle meter handles 300 watts. It reads forward / reflected power in 50 / 300 and 5 / 50 watt ranges. Has on / off lamp switch. *HRO Price $99.95*

MFJ-941E Versa Tuner II 300-watt tuner for 1.8-30 MHz. It has a lighted cross-needle meter and on/off switch. *HRO Price $109.95*

MFJ-948 like the 949E but without dummy load. Eggshell white. *HRO Price $119.95*

MFJ-949E Deluxe Versa Tuner II covers 1.8-30 MHz and handles 300 watts. Has built-in 50 ohm dummy load. Lighted peak reading cross-needle SWR / wattmeter reads forward / reflected power in 50 / 300 and 5 / 30 watt ranges. Front panel antenna switch selects 2 coax lines directly or through tuner, random wire / balanced line or dummy load. Efficient 12-position airwound inductor gives lower losses and more power out. Has 4:1 balun, 1000 volt capacitors. A black aluminum front panel matches your rig perfectly. *HRO Price $129.95*

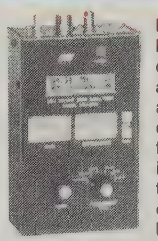
MFJ-962D Versa Tuner III for 1.8-30 MHz handles 1.5 kW PEP. Matches coax, random wire, or balanced line (built-in 4:1 balun). Six position antenna switch for 2 coax lines. *HRO Price $249.95*

MFJ-969 300 Watt Roller Inductor Tuner with AirCore™ roller inductor. Covers 6m throught 160m. Has lighted cross-needle meter, 8 position antenna switch, built-in dummy load, 4:1 balun. Tunes any antenna. *HRO Price $189.95*

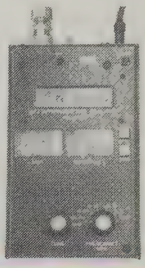
MFJ-986 Differential-T Tuner™ for 1.8-30 MHz, at 3 kW PEP. T-network with AirCore™ roller inductor and differential capacitor. Peak reading cross-needle SWR / wattmeter for 200 / 50 and 2000 / 500 watt ranges. Roller inductor spinner knob, 3 digit counter. 6 position antenna switch. 4:1 balun. *HRO Price $299.95*

MFJ-989C Versa Tuner V heavy duty! Covers 1.8-30 MHz, 3 kW PEP, matches everything: coax fed, random wires and balanced lines. AirCore™Roller inductor with spinner knob and 3-digit counter. Peak reading cross-needle SWR / wattmeter 200 / 2000 watt ranges. 50 ohm, 300 watt dummy load, 4:1 balun, 6 position antenna switch, tilt flip stand. *HRO Price $319.95*

SWR Analyzers



MFJ-259B SWR Analyzer™ with RF Impedance Meter reads antenna SWR, complex RF impedance: Resistance (R) and Reactance (X) or Magnitude (Z) and Phase degrees, coax cable loss in dB, coax cable length and distance to fault, return loss, reflection coefficient, inductance and capacitance. Tell battery voltage. Has huge LCD digital readout with built-in frequency counter. Side-by-side SWR and RF impedance meters, Ni-Cd internal battery charger, battery saver feature, low battery warning and easy access battery panel. Features smooth reduction drive tuning. Truly portable. Uses 10 AA or Ni-Cd batteries (not included) or 100 VAC with MFJ-1315 ($14.95). *HRO Price $199.95*



NEW! **MFJ-269 MFJ HF/VHF plus UHF SWR ANALYZER** Like MFJ-259B, but also covers 41`5 to 470 MHz. Has LCD logarithmic SWR bargraph, built-in *Coax Calculator*™, new 12-bit A/D converter for better accuracy and resolution. You can measure any characteristic impedance of coax from 10 to over 600 Ohms. *HRO Price $359.95*

Antenna Switches

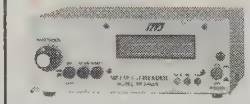
MFJ-1702C Coax Antenna Switch. 2 positions plus center ground, 50 ohm. Rated to 500 MHz with 02 dB loss. Handles 2.5 kW PEP or 1 kW CW. 60 dB isolation at 300 MHz. 50 dB isolation at 450 MHz. Unused terminal grounds for static protection. *HRO Price $24.95*

MFJ-1704 Coax Switch 4 positions plus center ground, 50 ohm. Rated to 500 MHz with 0.2 dB loss. Handles 2.5 kW PEP, 1 kW CW, 50 dB isolation at 500 MHz. Includes a replaceable lightning protection device that reduces lightning surges and static. *HRO Price $64.95*

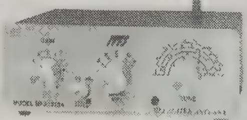
MFJ-1701 Antenna Switch 6 positions, 50-75 ohm. Handles 2 kW PEP or 1 kW CW. 1.8-30 MHz. SO-239 connectors. Unused positions grounded. *HRO Price $49.95*

MFJ-1700B Antenna / Transceiver Switch 1-6 antennas, 1-6 rigs. Tuner, SWR meter, linear etc. in line to operate any combination. 50-75 ohms. Handles 2 kW PEP or 1 kW CW. 1.8-30 MHz. SO-239 connectors. Unused positions grounded. *HRO Price $79.95*

SWL Products



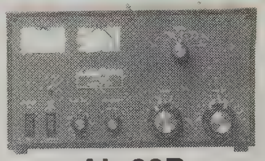
MFJ-462B copies RTTY, ASCII, CW and AMTOR signals. Plugs into shortwave receiver earphone jack and displays messages on two-line, 16 character LCD display. No computer needed. *HRO Price $169.95*



MFJ-1020B Indoor Active SWL Antenna. Tuned circuit minimizes intermod, improves selectivity, reduces noise outside the tuned band. Use as preselector with external antenna. 0.3 to 30 MHz. Tune, Band, Gain, ON-OFF / Bypass Controls. Telescoping whip. Use 9 V battery (not included), 9-18 VDC or 110 VAC with optional MFJ-1312. *HRO Price $79.95*

HF Amps

AMERITRON

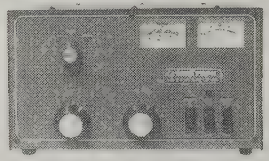


AL-80B

$1199.95

HRO Discount Price

Ameritron's AL-80B gets a kW PEP output from a compact desktop linear that plugs into a 120 VAC outlet. You get 850 watts output on CW and 500 watts output on RTTY. It covers all bands 160-15 meters including WARC and MARS. It is user modifiable for 10/12 meters with the proper license. The amp has an extra heavy duty power supply, Eimac® 3-500Z tube, nearly 70% efficiency, tuned input, Pi/Pi-L output, inrush current protection, multi-voltage transformer, dual cross-needle meters, QSK compatibility, two-year warranty. Made in the USA.



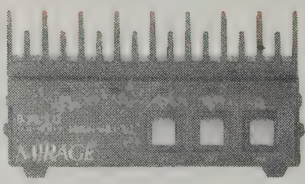
AL-811	AL-811H
3-tube model	4 tube model
600-watt output	800-watt output
$629.95	$749.95

HRO Discount Prices

These low-cost HF amps give you plenty of power to burst thru QRM. Both compact desktop linears will slip right into your ham shack and plug into your nearest 120 VAC outlet. You get three (or four) tough 811A transmitting tubes plus an extra heavy duty power supply, all HF band coverage, pressurized ventilation, tuned input, dual illuminated meters, adjustable ALC, operate / standby switch, transmit LED, UPS shippable.

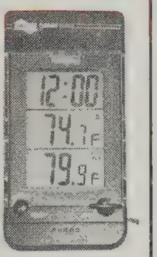
VHF / UHF Amps

MIRAGE



Please see the chart on page 77 for detailed specs and model numbers. All the have a 1 year warranty on the RF power transistors.

Clocks



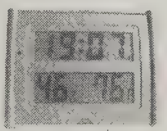
MFJ-152 24 / 12 Hour Clock Plus Temperature. A single glance gives you indoor, outdoor, temps and 24/12 hour time on huge 3/4 inch LCD digits. Simple 5-button operation for max/min temps, backlighting, clear display and hour.minute settings. Lock positions available for 24/12 hour time, clock set and Centigrade/Fahrenheit. Uses 2 AAA batteries that are included. *HRO Price $24.95*

MFJ-105C 24 Hour Quartz Wall Clock. Handsome black. 10" diameter face, sweep second hand. Uses single "A" battery (not included). *HRO Price $19.95*

MFJ-112 DXer's World Map Clock. Push-buttons let you move east and west on the map display to the time at any QTH. Time display hour/minute/second. Also displays week, month, year and day of the week. User selectable for 12 or 24 hour display format. *HRO Price $24.95*

17:35
5:35
17:35

MFJ-107B / 108B 12 / 24 Hour Clocks Uses huge 5/8 inch bold LCD digits. Choose from the dual clock that has UTC and local display or the single 24 hour clock. Brushed aluminum frame. Easy set. *HRO Prices MFJ-108B $19.95; MFJ-107B $9.95*



MFJ-120 Monster Display Atomic Clock World's most accurate clock adjusts itself based on signal readings received from Ft. Collins, Colorado. Calibrates internally to the absolute correct time within a billionth of a second.Operates on two AAA batteries. Choose 24 or 12 hour operation. Clock measures 8H x 10 1/2W x 2D inches. Has relative humidity, and indoor temperature, alarm. Beatiful metallic tan with two huge LCDs (6 1/2W x 2D) *HRO Price $69.95*

Noise Filters

MFJ tunable DSP filter

MFJ-784B DSP Filter automatically eliminates heterodynes, reduces noise and interference simultaneously on SSB, AM, CW, packet, AMTOR, PACTOR, RTTY, WeFAX, FAX, weak signal VHF, EME, satellite. MFJ's tunable FIR linear phase filters minimize ringing, prevent data errors and have "brick wall" filter response with up to 60 dB attenuation just 75 Hz away. Tune lowpass, highpass, notch, and bandpass including optimized SSB and CW filters.12VDC or 110VAC w/ optional MFJ-1315. *HRO Price $214.95*

MFJ-1026 wipes out interference on all modes SSB, AM, CW, FM and frequencies from 1.5 to 30 MHz. Wipes out lightning crashes, severe power line noise from arcing transformers, lamp dimmers, touch controlled lamps, electric drills, motors, industrial processes, etc. Dig out weak stations, eliminate unwanted signals. Better than a phased antenna. Connects between transceiver and transmitting antenna. RF sense T/R switch bypasses transceiver when you transmit. Adjustable delay time. Uses 12VDC or 110 VAC with MFJ-1231B ($12.95). *HRO Price $169.95*

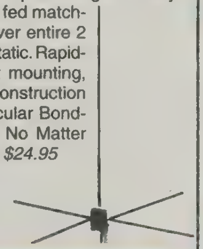
HF Antennas

HF Vertical Antenna No Radials

MFJ-1798 Halfwave Vertical. Covers 10 bands: 75/80, 40, 30, 20, 17, 15, 12, 10, 6 and 2 meters. No ground radials or ground needed because of the effective counterpoise that is 12 feet across. Mount it from ground level to roof top. The feed line is isolated from the antenna using MFJ's Air-Core™ balun. Achieves full-sized performance with full size radiators for 2 – 20 meters and high efficiency end-loading for 30, 40 and 75/80 meters. UPS shippable.

MFJ-1796 6 Band Vertical *HRO Price$199.95*

MFJ-1798 10 Band Vertical. Covers 75/80. 40, 30, 20, 17, 15, 12, 10, 6, 2 meters. *HRO Price $279.95*

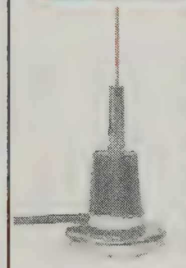


MFJ-1750 5/8 Wave Ground Plane 300 watt antenna for 2 meters gives you maximum possible gain of any single element antenna. Shunt fed matching network for lowest SWR over entire 2 meter and bleeds off unwanted static. Rapid-tune Radiator™, single U-bolt mounting, strong lightweight aluminum construction protected by Permanent Molecular Bonding Technology™ and 1 year No Matter What™ guarantee. *HRO Price $24.95*

MFJ-1752 220 MHz *HRO Price $24.95*

MFJ-1740 1/4 Wave Ground Plane *HRO Price $14.95*

Mobile Antennas



MFJ-1724B Mobile Magnetic Mount Dual Band antenna gives you quarter wave stainless steel whip for 2 meters and 440 MHz, coax and connector. Low SWR, 200 watts. *HRO Price 16.95*

MFJ-1728B Mobile Magnetic Mount 5/8 wave 2 meter antenna, covers 144-174MHz , low SWR, 300 watts. *HRO Price 29.95.*

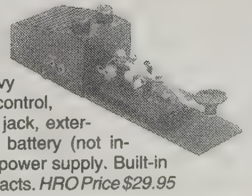
MFJ-1729 Mobile Magnetic Mount super gain dual band antenna. *HRO Price 34.95.*

MFJ-1734 Dual Band Glass Mount 144 / 440MHz antenna gives 2.6 dB gain on 2 meters and 6.3 dB on 440 MHz. Low SWR on both bands. Free BNC adapter is included for handhelds. HRO Price $39.95

MFJ-1738 2-meter Glass Mount Antenna handles 50 watts with 2.6 dB gain, low SWR over entire 2 meter band. *HRO Price. $29.95*

Code Tutor

MFJ-418 Pocket Size Morse Tutor. Learn from zero code speed to Extra Class with customized code practice. Random, QSO mode, word recognition mode. Easy-to-use menu. Uses 9V battery. *HRO Price $79.95*

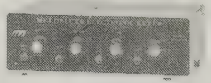


MFJ-557 Deluxe Code Practice Oscillator features a Morse straight key on a non-skid heavy steel base with volume control, tone control, earphone jack, external speaker plug, 9 V battery (not included) or optional AC power supply. Built-in speaker, adjustable contacts. *HRO Price $29.95*

Keyers

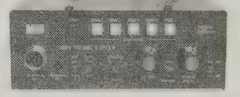
MFJ-422C Keyer/ Bencher Paddle combo makes a small, attractive unit that is a pleasure to use. Iambic keying, adjustable weight and tone, front panel volume and speed controls (8-50 WPM), dot-dash memories, sidetone, speaker and automatic or semi-auto / tune modes. Use 9 V battery or 110 VAC with optional MFJ-1305 *HRO Price $134.95*

MFJ-422DX Keyer only. Mount to your Bencher paddle. *HRO Price $79.95*



MFJ-407D Deluxe Electronic Keyer Dot-dash memories, self-completing dots and dashes, jam-proof spacing, RF proof, instant start. Single squeeze, or straight key. Controls include speed, weight, tone and volume. ON/OFF, tune auto / semi-auto, built-in speaker, 9V battery (not included) or 110 VAC with optional MFJ-1305. *HRO Price $69.95*

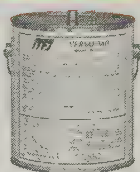
NEW!



MFJ-434 Contest VOICE Keyer™

New microprocessor controlled keyer calls CQ, sends your call and does contest exchange for you in your own natural voice! Five natural sounding messages in a total of 75 seconds. Repeat messages continually, varying the repeat delay from 3-500 seconds. Receive audio jack, stop button, PTT mike button, or VOX PTT line. Remote jack. *HRO Price $179.95*

Station Accessories



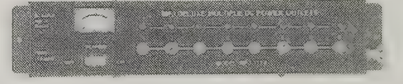
MFJ-250 1 kW Dummy Load 50 ohm oil-filed dummy load. Low VSWR to 400 MHz. Rated 1 kW CW or 2 kW PEP for 10 minutes. 1/2 rating for 20 minutes. 200 watt CW or 400 watt PEP continuous. Includes high quality transformer oil (no PCB). *HRO Price $59.95*

MFJ-260C VHF/HF Air Cooled Dry Dummy Load. Covers 0-650MHz. 300 watts for 30 seconds. Has derating curves. SO-239 connector. *HRO Price $34.95*

MFJ-264 UHF / VHF / HF Dry Dummy Load covers up to 650 MHz, usable to 750 MHz. Rated 1.5 kW for 10 seconds, 100 watts continuous. *HRO Price $69.95*

MFJ-704 Low Pass Filter suppresses TVI, RFI, phone and other interference. Handles full legal power with 2:1 SWR for 1.8-30 MHz. *HRO Price $49.95*

MFJ-270 Lightning Surge Protector. MFJ's 270 safeguards your radio equipment from damaging static electricity and lightning induced surges. Ultra-fast gas discharge tube safely shunts up to 5000 amps of peak impulse current to an independent ground. Use up to 1000MHz. Insertion loss < 0.1 dB. Low SWR to 1.1:1. Does not protect against a direct lightning hit. *HRO Price $29.95*



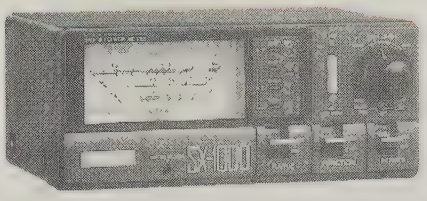
MFJ-1118 High Current Multiple DC Outlet. Gives you two HF and/or VHF transceivers and six or more accessories from your transceivers's main 12 VDC power supply. *HRO Price $74.95*

MFJ-1116 Deluxe Multiple DC Power Outlet. 8 outlets for powering accessories. *HRO Price $49.95*

MFJ-1112 like MFJ-1116 without ON / OFF switch, voltmeter and fuse. 6-pair outlets. *HRO Price $34.95*

SWR / WATT METERS

DIAMOND

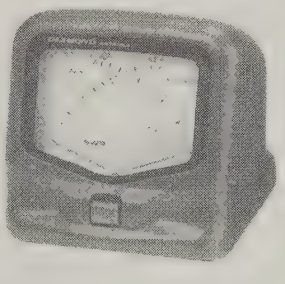


SX-1000

Diamond RF SWR / Watt meters cover the complete range of amateur applications.

- Illuminated meters.
- Require 12 volts DC.
- Low insertion loss generally less than 0.2 dB in HF range and 0.3 dB at higher frequencies.
- Power measurement accuracy is generally ±10% on the higher power ranges and ±5% on the lower ranges.
- Some have remote sensors for power pick-up.
- Low loss SO-239 connectors are used except for the high frequencies as noted in the table.
- Measurements are forward power, reflected power, SWR &, on selected frequencies, PEP monitor.

SX-40C



The SX-20C and SX-40C are the latest meters from Diamond. The SX-40C can be used on 220MHz with a correction factor.

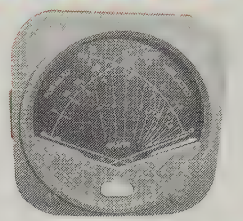
Diamond SWR / Watt Meters

Model	Freq MHZ	Power Ranges	Con-nector	HRO Price
SX-20C	3.5-30 50-54 130-150	30/300 W	SO-239	$89.95
SX-40C	144-470	15/150 W	SO-239	$79.95
SX-100	1.6-60	30/300/ 3KW	SO-239	$129.95
SX-200	1.8-200	5/20/ 200 W	SO-239	$99.95
SX-400	140-525	5/20/ 200 W	SO-239	$109.95
SX-600	1.8-160 140-525	5/20/200 W	SO-239	$159.95
SX-1000	1.8-160 430-450 800-930 1230-1300	5/20/ 200 W	SO-239 Type N Type N Type N	$199.95

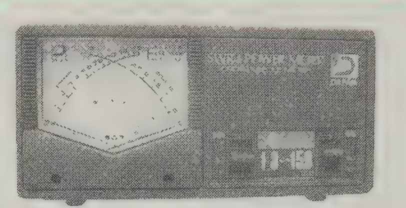
DAIWA

CN-460M

- Compact
- Cross Needle Meter
- Mobile/Base Use



	CN-410M	CN-460M	CN-465M
Frequency	3.5-150 MHz	140-450 MHz	140-450 MHz
Power Range	15-150 W	15-150 W	15-150 W
Power Rating	150 W	150 W	150 W
SWR Detection	3 W minimum	3 W minimum	3 W minimum
HRO Prices	$119.95	$119.95	$119.95



CN-101

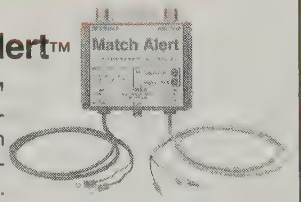
- Large cross needle meter
- Forward / reverse read simultaneously
- PEP monitor function

	CN-101
Frequency	1.8 - 150 MHz
Power Range	15 /150 / 1.5 KW
Power Rating	1.5 KW (1.8-60 MHz) 1 KW (144 MHz)
SWR Detection	4 W minimum
HRO Price	$99.95

VSWR Monitor

RF Applications

Match Alert™

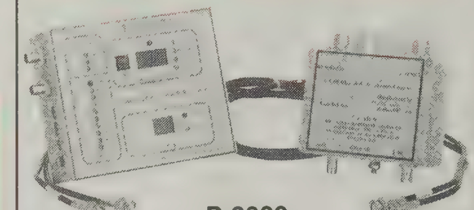


Match Alert™ offers economical protection for HF transmitting systems. The microprocessor-based monitor gives a visual and electrical alarm if a preset VSWR level is exceeded. Eight levels are dip-switch selectable. Match Alert covers 1.8 to 30 MHz and is rated at 3000 watts. Requires 11 to 16 VDC. A power supply is not provided. A form-C relay contact rated at 1 ampere is available via a three foot wire harness. **HRO Price $99.95.**

HF Digital Watt Meters

RF Applications

RF Applications watt meters have a VSWR alarm that will drop out an amplifier under high VSWR conditions.



P-3000

A remote coupler design with a power rating of 15 to 2950 watts and a VSWR from 1.0:1 to 19:1. A 5 KW model is now available. **HRO Price $259.95**

P-2000A

Uses a combination of digital microprocessor technology and analog panel meters. Has an expanded VSWR scale and settable VSWR alarm. Covers 1.8 to 30 MHz up to 2000 watts A 5kW model is also available Call for price. **HRO Price $299.95 2kW version**

VFD Wattmeter

The VFD wattmeter features a 2 line by 16 character vacuum fluorescent display, tuning and operate modes and a settable VSWR limit. Provides real time peak and hold display of your actual power and VSWR every time you transmit. The VFD's 65-element bargraph gives you a better resolution than a meter and you can select a quick update for the display power (Tune Mode). The VFD's sensor uses large cores that will not saturate, even above 1.5 kW. This unit also features a settable alarm indication to let you know that your VSWR has exceeded a present limit. As vanity options, the VSWR alarm relay option and a power monitor option are available directly from RF Applications at additional cost. **HRO Price $249.95**

P-100A

Display and control functions are similar to the P-2000A. Uses coaxial line sections and sensor elements from Bird® or Coaxial Dynamics®. **HRO Price $239.95**

P-1500

Has a built-in coupler designed for 1.8 to 30 MHz with a power rating of 15 to 1500 watts and a VSWR from 1.0:1 to 19:1. **HRO Price $219.95**

WATT METERS

FILTERS

BIRD

Model 43 Directional Wattmeter

This low-cost Thruline Directional Wattmeter has a history of reliability, durability and flexibility. It is a well engineered, portable insertion-type meter that measures forward and reflected CW power in coaxial transmission lines. It gives accurate RF power flow readings under any load conditions.

Model 43 is comprised of a line section and a direct-reading 3 scale meter in a rugged, corrosion-resistant aluminum case. Quick Change (QC) type connectors and a full range of plug-in measuring elements are available. (See the chart for the most popular elements. Others are available on special order.) Store two extra elements in the housing. The shock-mounted 30-microampere meter has 3 expanded scales of 25, 50 and 100 unit calibrations. It comes with type SO-239 QC connectors, but others are available. Please specify when you order.

PEP Modification Kit Model 4300-400

Upgrade your existing Bird 43 meter to a PEP reading meter. Order the 4300-400 modification kit. Easy installing procedures are included for most versions of the Model 43.

Model 43P Peak Reading Wattmeter

The Model 43P is a peak-reading version of the popular Model 43. The peak reading option has been installed in one of the spare element holes on the side of the meter. The meter reads CW with the switch out and PEP when the switch is in. Requires a 9 VDC battery. The frequency range and power levels are determined by the element used. No special elements are required. The meter comes with SO-239 QC connectors installed. Others are available.

Accessories

The most popular wattmeter accessories are:

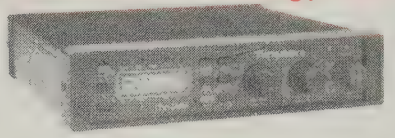
- CC-1 Meter case. Space for 6 elements.
- EC-1 Element case. Space for 12 elements.

Bird Standard Elements

Power	2-30 MHz	25-60 MHz	50-125 MHz	100-250 MHz	200-500 MHz	400-1000 MHz
5 watts		5A	5B	5C	5D	5E
10 watts		10A	10B	10C	10D	10E
25 watts		25A	25B	25C	25D	25E
50 watts	50H	50A	50B	50C	50D	50E
100 watts	100H	100A	100B	100C	100D	100E
250 watts	250H	250A	250B	250C	250D	250E
500 watts	500H	500A	500B	500C	500D	500E
1000 watts	1000H	1000A	1000B	1000C	1000D	1000E
2500 watts	2500H		2500B	2500C		
5000 watts	5000H					
10000 watts	10000H					

Digital Processor

Timewave Technology Inc.



DSP-599zx

All Mode Noise Filter & RTTY Modem

This powerful noise and QRM filter surpasses the newest "DSP" radios with its flexible features. Continuous filter tuning up to 5 kHz opens up wider bandwidth modes like shortwave, AM broadcast, and VHF/UHF FM. Heterodynes disappear, weak signals pop up from the noise, and the sharp filters slice away QRM. The DSP RTTY modem (w/optional DSP-RTTY software) pulls out solid copy when you can barely hear a signal. An AM line noise filter dramatically reduces noise that the newest radios can't touch! Filter settings are easy-to-read on the backlit alphanumeric LCD display. Pushbuttons select noise reduction, memories, voice, CW, and data modes. Optical encoders tune the filters.

- Hyperspeed DSP - 27 ns, 36.8 MIPS.
- 2 selectable channels with multiple memories.
- Front panel programmable input sensitivity and line output level.
- Calibrated audio voltmeter & generator.
- AC line noise filter for AM.
- 13 preset data filters + 2 user presets.

HRO Price $369.95 **AC-4 P.S. $19.95**

Telephone Filters

K-COM

Stop telephone RFI from transmitters in the 0.5 to 30 MHz range. These filters are assembled and come with instructions. Special order either model to cover 500 kHz to 3.0 MHz. Call for prices and information.

Model RF-1 Single Line Filter for phones, answering machine, modems, faxes, & cordless phones. RJ-11 modular connectors. Special ordered for two-line phones. **HRO Price $16.95**

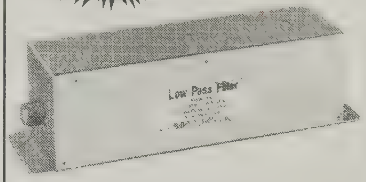
Model RF-2 For inserting RFI filtering into telephone wiring: inside phone jacks, behind wall-mounted phones, etc. Solderless connectors. **HRO Price $10.95**

High / Low Pass

BENCHER, INC.

Made in USA

YA-1



Bencher's low-pass filter has exceptional specifications. Working range: 1.8-29 MHz. Impedance: 50 ohms. Power rating: 1.5 KW continuous, 5 KW peak. Attenuation: at least 80 dB at 54 MHz. **HRO Price $69.95**

Bandpass Filters

DIGITAL COMMUNICATIONS INC.

DCI

DCI-146-4H Bandpass Filters

Eliminate intermod with these bandpass filters **for 144, 220 and 440 MHz.** Connect a filter between your VHF / UHF, base or mobile rig and antenna. Enjoy your favorite station without listening to the squawks and squeals of intermod. These filters reduce the strength of interfering signals while allowing the signals you want to hear to pass through at virtually full strength.

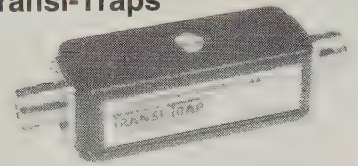
The filters are made to first-class specifications with silver-teflon connectors and extruded aluminum, copper and brass. In addition to the standard 4-pole filters, 7-pole and larger ultra-sharp filters are available. Contact HRO for more information. The DCI-146-4H intermod filter for 2 meters is 12"X3"X5" and has UHF connectors. It can be custom tuned to almost any frequency between 100 and 900 MHz. **DCI-146-4H: HRO Price $89.95**

SWITCHES/SURGE PROTECTION

Surge Protectors

ALPHA DELTA

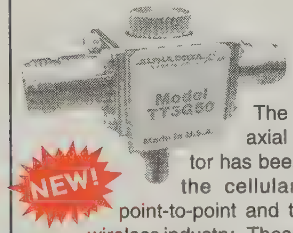
Transi-Traps



The Second Generation

Protect your rig from lightning, EMP and static. The Second Generation offers extremely low loss thru 2500 MHz and has convenient ground stud hardware for direct mounting to a bulkhead, ground strip or ground wire. Transi-Traps are constructed of the finest quality materials: housings are of die cast aluminum; the brass element provides a constant impedance; the ceramic gas tube cartridge is protected by a custom-designed nylon shock absorber. Units give years of reliable service. When hit with a charge that exceeds its rating, it will short and indicate that a replacement plug is required. Most units take thousands of surges before needing a replacement. Transi-Traps are designed for 50 ohms and include a replaceable cartridge. Units come with UHF connectors. Type "N" are available. To order replacement plugs, specify the model so the correct plug can be sent.

ATT3G50



The **ATT3G50** coaxial surge protector has been designed for the cellular, microwave point-to-point and the broadband wireless industry. These products feature very low loss performance through 3 GHz. Typical loss is 0.1 dB at 1 GHz through 0.5 dB at 3 GHz. This series represents the lowest loss broadband design in the industry. These units are available with a choice of type "N" or "UHF" connectors.

Model	Description	HRO Price
RT/2G	200 W through 500 MHz, UHF	$39.95
RT-N/2G	200 W through 500 MHz, Type N	$46.95
HV/2G	2 kW through 500 MHz, UHF	$44.95
HV-N/2G	2 kW through 500 MHz, Type N	$49.95
ATT3G 50	200W through 3.0 GHz, Type N	$59.95
ATT3G 50HP	2kW through 3.0 GHz, Type N	$59.95
ATT3G 50U	200W through 500 MHz, UHF	$49.95
ATT3G 50UHP	2kW through 500 MHz, UHF	$49.95

Coax Switches

DAIWA

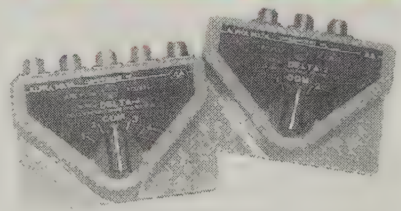
Daiwa has two heavy-duty coaxial switches. Both are useable to 500 MHz and the unused positions are grounded. Switches are available at slightly higher prices with type "N" connectors.

CS-401
Four-position switch.
HRO Price
$159.95

CS-201
Two-position switch.
HRO Price $29.95

Lightning Protection

ALPHA DELTA



Delta-4
4 Position Switch

This lightning protected 4 position RF coax switch uses the Alpha Delta Arc-Plug cartridge to protect your equipment from electrical surges. It features the exclusive center "off" (ground) position which internally disconnects and grounds all antenna circuits. The Delta-4 has custom designed cast housing with constant impedance micro-strip cavity construction for outstanding performance through UHF. The switch uses a positive detent roller bearing switch drive, and handles full legal power. Made in the USA. Order Delta-4/N for type "N" connectors. The Delta-4 handles frequencies through 500 MHz and the Delta-4/N through 1.3 GHz. **HRO Price $79.95; Type N $89.95**

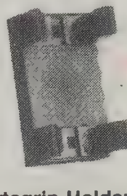
Delta-2
2 Position Switch

This 2 position coax switch is precision lightning surge protected. It has the same constant impedance cavity construction with "center-off" ground as the Delta-4 and a built-in replaceable Arc-plug® cartridge. Order UHF or type "N" connectors for low-loss performance through 1.3 GHz.
HRO Price $49.95; Type N $64.95.

GPS / Radio / Phone Holders

Portagrip

Portagrip offers a collection of holders for cellular phones, GPS units and radios that will make your mobile operations easier and safer. Standard foot size: 2.5 x 2.5 inches. For tight quarters, use the small foot: 2 x 1.625 inches.



701

702

Portagrip Holder - hold most phones from 1.6" to 2.6" wide. Includes models *701*, *706* Portagrip / Slimline with set screw adjustment, *707* Porta-grip / Slimline with knob adjustment.

Portagrip 2000: adjustable both in width and length. Includes models *702* for narrow phones, *703* for phones up to 2.25' and *704* for flip-style phones.

322

716

Standard Mounts: Split ball base with 90 degree tilt movement. Includes models *320* std mount w/6" rise, *322* deluxe mount w/6" rise, *328* mount base only accommodates 5/8" diameter post tilts 0 to 90 degrees, *329* base only accommodates 5/8" diameter post and tilts to 45 degrees over center.

Slimline 2000 Pedestal Mounts: Pivots 210 degrees and rotates 360 degrees, 6" or 9" heights. Includes model *716* w/set screw adjustment at head and foot, *717* knob adjustment at head and foot.

726

782

797

Mini Mount: Perfect for tight installations, height only 4". Includes models *726-04* set screw adjustment at head and *727-04* knob adjustment at head.

Stay-put Flex Mount: Includes model *782*.

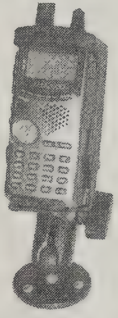
Uniflex Mount: Includes model *797* with knob adjustment under mounting plate.

Mount Anything Anywhere with R-A-M!

The mounting systems shown demonstrate only a few of the many useful combinations. With different R-A-M compatible items, applications are limited only by your imagination.

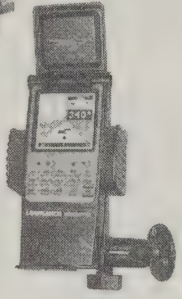
R-A-M is the revolutionary universal mounting system that allows you to mount practically anything anywhere. Whether it's in an automobile, boat, aircraft, ATV, or motorcycle, R-A-M's family of more than 160 interchangeable accessories offer solutions to your most challenging mounting problems. If you need to mount a radio, GPS, computer, cellular phone, antenna, or just about anything else look no further. R-A-M mounts will help make a professional job easy and affordable. They will allow you to quickly reposition or remove your electronics for perfect viewing or safe keeping. Its unique design provides easy installation, mobility, strength, versatility, vibration protection and durability, all at a low cost. R-A-M is made of marine grade aluminum with a powder coated finish, stainless steel hardware, rubber balls, and is backed by NPI's renowned Lifetime Warranty. Visit the R-A-M web site at: www.ram-mount.com to see the newest products and to learn more about this revolutionary mounting system.

1" Ball Mount for hand-held electronics with belt clips.
Item **RAM-B-138-BC1**
Weight .80 lbs.
Retail- $27.99

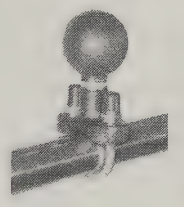


1" Ball Mount for Kenwood TH-D7A.
Item **RAM-B-138-KE1**
Weight .80 lbs.
Retail- $27.99

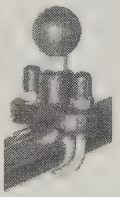
3/4" to 1" Diam. Rail Mount Adapter Kit for all R-A-M bases.
Item **RAM-233**
Weight .28 lbs.
Retail- $13.99



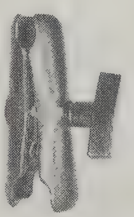
1" Ball Universal metal hand-held molder 1 3/8" to 4 1/8" wide.
Item **RAM-B-120**
Weight 1.48 lbs.
Retail- $49.95



1/2" to 1" U-Bolt Base with 1 1/2" ball.
Item **RAM 231**
Weight .36 lbs.
Retail- $14.99



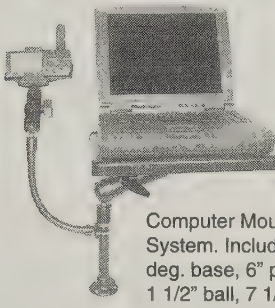
1/2" to 1" U-Bolt Base with 1" ball.
Item **RAM-B-231**
Weight .28 lbs.
Retail- $13.99



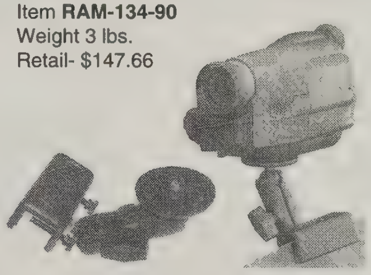
Double Socket Arm for 1 1/2" balls.
Item **RAM-201**
Weight .68 lbs.
Retail- $18.99

Double Socket Arm for 1" balls.

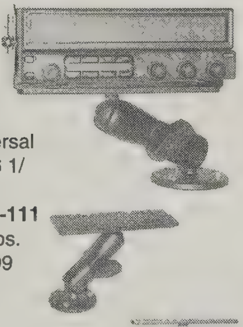
Flex Arm Mounting System. Includes 1/2" to 1" u-bolt base 12" flex arm with ball, double socket arm, and base with 1" ball. Item **RAM B-142-12**
Weight 1.25 lbs. Retail- $58.99



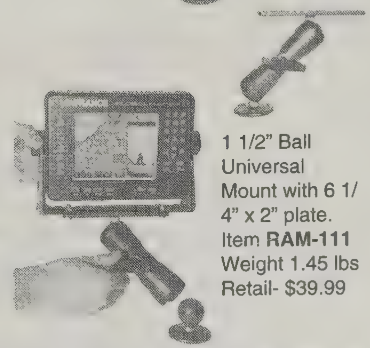
Computer Mounting System. Includes 90 deg. base, 6" pipe with 1 1/2" ball, 7 1/4" dbl. socket arm & 10" X 13 1/2" plastic tray.
Item **RAM-134-90**
Weight 3 lbs.
Retail- $147.66



1/8" to 1" Clamp with 1" ball for radios, cameras, antennas, radar detectors, GPS, etc. Attach to many profiles including glass. Item **RAM B127**
Weight .81 lbs.
Retail- $34.99

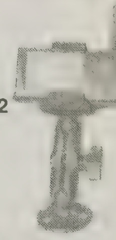


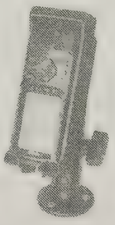
1" Ball Universal Mount with 6 1/4" x 2" plate.
Item **RAM-B-111**
Weight .86 lbs.
Retail- $29.99



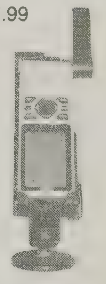
1 1/2" Ball Universal Mount with 6 1/4" x 2" plate.
Item **RAM-111**
Weight 1.45 lbs
Retail- $39.99

1" Ball Mount for Garmin II & III series GPS.
Item **RAM-B-138-GA2**
Weight .80 lbs.
Retail- $27.99





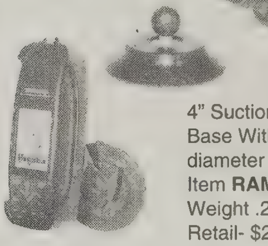
1" Ball Mount for Garmin 12 series GPS.
Item **RAM-B-138-GA1**
Weight .80 lbs.
Retail- $27.99



1" Ball Mount for Garmin 48 & 90 series GPS.
Item **RAM-B-138-GA3**
Weight .80 lbs.
Retail- $27.99

1" Ball Mount for Lowrance & Eagle models.
Item **RAM-B-138-LO1**
Weight .80 lbs.
Retail- $27.99

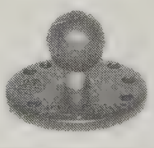
1" Ball Mount for Magellan Blazer 12, 300, 315 & 320.
Item **RAM-B-138-MA1**
Weight .80 lbs.
Retail- $27.99



4" Suction Cup Base With 1" diameter ball.
Item **RAM-B-224**
Weight .24 lbs.
Retail- $21.99

2 7/16" Diameter Base with 1 1/2" ball.
Item **RAM-202**
Weight .19 lbs.
Retail- $10.99

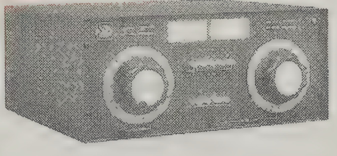
2 7/16"Diameter Base With 1 1/2" Ball



2 7/16"Diameter Base with 1" ball.
Item **RAM-B-202**
Weight .12 lbs.
Retail- $9.99

Nye Viking

3 KW Tuner MB-V-A



This high quality tuner is for the amateur who wants "the best." Match transmitter output impedance to almost any antenna system for maximum power transfer. Low pass Pi network tuning 1.8-30 MHz. Automatic SWR. Separate power meter, 300 or 3000 W. Push button antenna switch for 4 antennas. Includes 3 KW balun. **HRO Price $799.95**

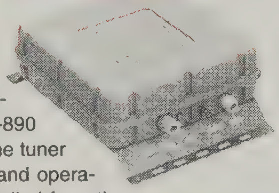
ALINCO

EDX-2

This automatic tuner is designed for use with the Alinco DX-70 HF radio but may be adapted for use with most HF rigs. Tunes from 10 to 160 m with wire lengths of 8 to 80 feet (40' for 160m). **HRO Price $299.95**

YAESU

FC-800

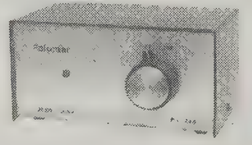


This automatic antenna tuner operates with the FT-890 HF transceiver. The tuner is fully automatic and operations can be controlled from the front of the FT-890. **HRO Price $469.95**

Tuner-Tuner™

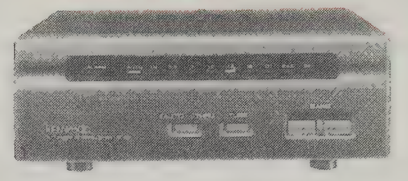
Palomar Engineers

Tuner-Tuner™ PT-340



If you use an antenna tuner, then you need the Palomar Tuner-Tuner to tune it to your operating frequency without turning on your transmitter, Connect the Tuner-Tuner between your tuner and your rig. Tune your receiver to the frequency on which you want to operate, Turn on the Tuner-Tuner and you will hear a loud, S9+ noise. Adjust your tuner until the noise drops out completely. Turn off the Tuner-Tuner and you are ready to transmit. **HRO Price $99.95**

KENWOOD

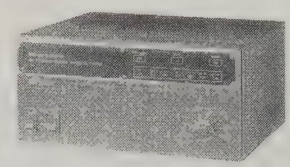


AT-50

A fully automatic antenna tuner to use with the TS-50 and other 100 watt HF transceivers. Useful for both mobile or fixed operation. Accurate tuning by pressing the AT TUNE key on the TS-50. Can be installed remotely. **HRO Price $339.95**

ICOM

Icom has two antenna tuners to use with their radios. All are automatic and, with the front panel controls, can be used with most HF exciters. Random wire and balanced line antennas cannot be used with the resonant antenna tuners. See the table on Page 9 for more tuner / radio compatibilities.



AT-180

Resonant Antenna Tuner

Fully automatic 100 W tuner styled for the IC-706. HF/6 meters. **HRO Price: $499.95**

AH4 Random Wire Tuner

This automatic tuner covers 3.5 - 50 MHz with a 7 meter or longer antenna or the optional AH-2b antenna element (7 MHz to 50 MHz). Use with all Icom transceivers. Forty-five memories store channel information for quick tuning. Installation is simple. No adjustments are necessary. Just connect the control and antenna cables. Its small size allows installation in a variety of locations. **HRO Price $309.95**

For Icom 706 or 706MkII

Better RF

Tune Control

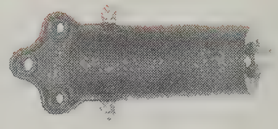
Tune control plugs into the Molex connector on the back of your radio and makes the "Tuner/Call" button operational. The tuner button will then emit a steady carrier at 10 watts for tuning antennas and checking SWR.

Suggested List $32.95

Baluns

BENCHER

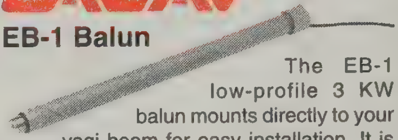
ZA-1A Balun



The ideal 1:1 Balun for dipoles, quads, inverted vees, and yagis from 80 - 10 meters lets your antenna radiate, not your feed line. It will accept 1/4" support rope for inverted vees. No rusting materials used. No ferrite cores to saturate and cause TVI. DC grounded for lightning protection. Included "O" ring seals coax connector. Rated 5KW peak. This tough, well-made product, will provide years of reliable service. **HRO Price $40.95**

CAL-AV

EB-1 Balun



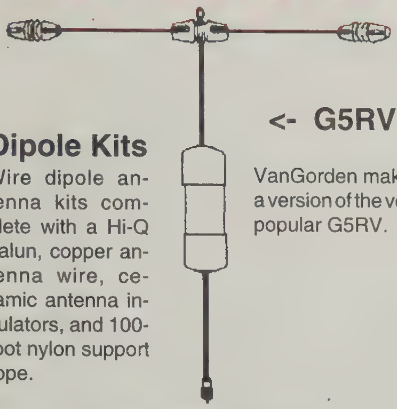
The EB-1 low-profile 3 KW balun mounts directly to your yagi boom for easy installation. It is broad band, 50 ohms, and has a frequency range of 1.8 to 30 MHz. The EB-1 has an SO-239 connector and easy-to-connect #14 wire leads color coded for antenna phasing. The balun is vacuum impregnated and sealed for durability and protection from the weather. **HRO Price $39.95**

CENTAUR

Centaur high performance Balun products represent state-of-the-art designs and the best material applications available to the communications industry. These baluns have stainless steel hardware, heavy duty body materials, and military grade internal components. They are well suited for adverse weather. Centaur Baluns are very conservatively rated and backed with Centaur's lifetime warranty.

Model	Description	Price
B11W 10-50	.5 to 50 MHz, dipole, 1:1,3kW SSB, Torodial material. Teflon So239A connectors, stainless hardware	$49.95
B11Y10	Same as B11W10 but for Yagi antennas. Supplied with stainless steel mounting bands	$49.95
B41Y10	For Yagis, 4:1 match	$64.95
B41W10	4:1 balun for 4:1 ladder line to coax match. 3kW SSB rating, .5 to 50 MHz	$64.95

VAN GORDEN



Dipole Kits

Wire dipole antenna kits complete with a Hi-Q balun, copper antenna wire, ceramic antenna insulators, and 100-foot nylon support rope.

VanGorden makes a version of the very popular G5RV.

Standard Length

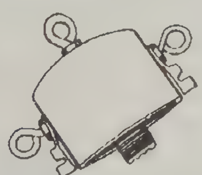
Models D-10 for 10 meters, D-15 for 15 m, D-20 for 20 m, D-40 for 40 m, and D-80 for 75 / 80 m.

Shortened

Models SD-40 for 40 m and SD-80 for 75 / 80 m.

Parallel

These models are made of multiple dipoles connected at the center balun and fed at this one point. Model PD-8010 is for 10-80 meters, PD-8040 is for 40 and 80 m, PD-4010 is for 10-40 m, and PD-4020 is for 20-40 m.



Baluns / Insulators
Egg insulators. Center and end insulators. 1:1 and 4:1 Baluns.

Tribanders

Force 12

Classic Tribanders C Series

Force 12 has a fine lineup of antennas covering the 20-15-10 bands with a single feedline. All are trapless and are acclaimed as outperforming all the various trapped antennas.

C-3	20-10 m, 18' boom.
C-3S	20-10 m, 12' boom.
C-3SL	20-15-10 m (3-element 20, 3-element 15, 4-element 10, with separate feedlines for maximum versatility).
C-4	40-10 m, 18' boom.
C-4S	40-10 m, 12' boom.
C-4XL	40-10 m, 30' boom (with 2 elements on 40).
C-4SXL	40-10 m, 23' boom (with 2 elements on 40).

Call HRO for Quotes

RF Detector

NCG

NEW!

KC1-R
KC1-B
$15.95
Suggested List

When activated, the RF detector indicates near-by RF by lighting up. Specify RED (KC1-R) or BLUE (KC1-B).

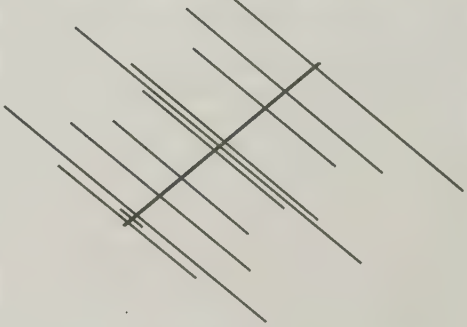
Van Gorden Antennas

Model	Type	Band	Length ft (m)	Power PEP	Wire Size	HRO Price
D-10	Standard Dipole	10	16(4.9)	2KW	#14	$26.95
D-15	Standard Dipole	15	22(6.7)	2KW	#14	$27.95
D-20	Standard Dipole	20	33 (9.9)	2KW	#14	$28.95
D-40	Standard Dipole	15/40	66 (19.8)	2KW	#14	$29.95
D-80	Standard Dipole	75/80	130 (39)	2KW	#14	$32.95
All-Bander	Standard Dipole	160-10 *	134 (40.8)	2KW	#14	$29.95
Shorty	Dipole	160-10 *	70(21)	2KW	#14	$44.95
SD-40	Shortened Dipole	40	45 (13.5)	2KW	#14	$34.95
SD-80	Shortened Dipole	75/80	90 (27)	2KW	#14	$36.95
PD-8010	Parallel Dipole	10 to 80	130 (39)	2KW	#14	$44.95
PD-8040	Parallel Dipole	15/40/80	130 (39)	2KW	#14	$40.95
PD-4010	Parallel Dipole	10/20/15/40	66 (19.8)	2KW	#14	$38.95
PD-4020	Parallel Dipole	20, 15/40	66 (19.8)	2KW	#14	$34.95
G5RV	Dipole	3.5-30 MHz	102(31)	2KW	#14	$49.95

* Antenna tuner required

BENCHER, INC.

SKYHAWK



Skyhawk 3X10 The Next Generation HF Yagi

The Bencher Skyhawk antenna is a major step forward for serious HF operators. It is not just another trapped tribander. The Skyhawk features 10 elements on a 23 foot boom, with three full-sized yagis sharing a common feedline and a common boom. There are three elements on 20 meters, three on 15 meters and four on 10 m. All elements are full-sized with no lossy traps.

Special features of the Skyhawk include wide bandwidth, excellent F/B ratios, superb gain, and low weight. With boom and element wind compensators, there is zero rotational mast torque and 90 mph wind survival. All materials are corrosion and UV resistant. Stainless steel blind rivets are used for element assembly.

Custom aluminum extrusions make assembly a snap and assure longevity. A new design of boom to mast bracket makes installation the easiest ever. Heavy wall boom construction means that no boom truss cable is required, making it easier to stack antennas for other bands. A Bencher P5 balun is included.

The wind load is 8.5 sq. ft, turning radius 22 feet, wind survival is 90 mph with no ice, 2" boom, 50 ohm impedance and a maximum power rating of 5KW.
HRO Price $799.95

Band Specifications

Band	Effective Boom Length	VSWR	F / B	Gain
20	23	<1.4:1	>20 dB	>7 dBi
15	15'6"	<1.5:1	>16 dB	>7 dBi
10	16'9"	<1.5:1	>14 dB	>7.7 dBi

HF ANTENNAS

butternut
ANTENNAS

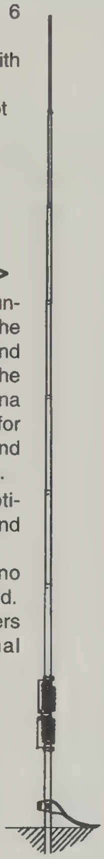
Multi-band HF Verticals

HF9V-X

More efficient than conventional trapped designs or "halfwave" verticals, the exclusive Butternut Differential Reactance Tuning system allows more of the antenna to be active on each band, for greater bandwidth, lower radiation angle, and superior performance!

- 9 bands, 80 thru 6 meters.
- No-radial operation with CPK counterpoise.
- Highly efficient 26 foot vertical radiator.

HRO Price $349.95



HF2V –>

Are you ready for the sunspot shortage when the action will be on 80 and 40? Be prepared with the HF2V. The entire antenna radiates on both bands for low radiation angle and maximum performance.

- Dual-band optimized for 80 and 40 meters.
- 32 feet tall; no guying required.
- 160 or 30 meters with optional adapters.

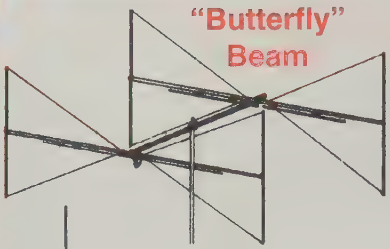
HRO Price $229.95

<– HF6V-X

Work the 6 most popular bands– 80, 40, 30, 20, 15 & 10 meters–with a single, highly efficient vertical radiator only 26 feet tall!

- No radial operation with CPK counterpoise.
- Add 160, 17 & 12, or 6 meters with optional adapters.

HRO Price $289.95

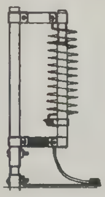


"Butterfly" Beam

HF5B

Five popular bands in a single lightweight 2 element beam antenna. Ideal where space is limited, the HF5B provides up to 3 dBd on 20, up to 5 dBd on 15, 12, and 10. Light enough to turn with a TV rotator, the HF5B has a 6 foot boom and a wingspan of only 12.5 feet. Weighs only 20 pounds; surtace area is 3 square feet.
HRO Price $439.95

Vertical Antenna Accesories



TBR-160S

TBR-160S 160 Meter kit for HF9V-X, HF2V or HF6V-X. Not recommended for CPK.
HRO Price $119.95

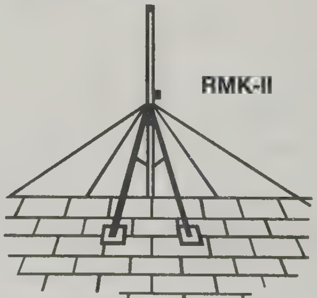
CPK Counterpoise kit for HF9V-X, HF6V-X. Allows operation with no radial system. **HRO Price $109.95**

STR-II Resonant radial kit for above ground mounting of Butternut verticals.
HRO Price $109.95

A-17-12 Adapter for 17 and 12 meters for 6 band Butternut verticals. **HRO Price $60.95**

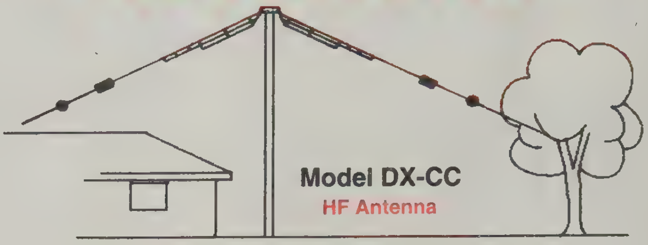
RMK-II-Roof mounting kit. Includes STR-II.
HRO Price $149.95

GPK Ground Radial Kit.
HRO Price $75.95



RMK-II

ALPHA DELTA



Model DX-CC
HF Antenna

HF Antennas for Limited Space

All the limited space antennas use stainless steel hardware where required, are fully assembled, and are manufacturered to withstand severe weather. SO-239 connectors.

Model DX-B is a single wire, high performance quarter wave sloper antenna for 160, 80, 40 and 30 meters. For limited space, the antenna requires only 60 feet for installation. Use with a wide range antenna tuner. Pre-assembled and pre-tuned. Has stainless steel hardware, 12 gauge insulated solid copper wire and the Alpha Delta "ISO-RES" RF choke coils, 50 ohm coax feed. Full legal power. **HRO Price $69.95**

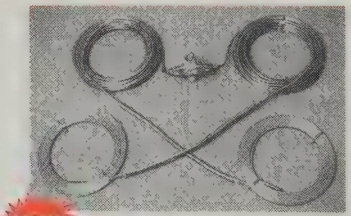
Model DX-CC: A no trap 80-40-20-15-10 meter dipole. 82' long.
HRO Price $109.95

Model DX-DD: A no trap 80-40 meter dipole. 82' long. **HRO Price $89.95**

Model DX-EE: A no trap 40-20-15-10 meter dipole. Only 40' long.
HRO Price $99.95

Model DX-A: A quarter wave twin sloper for 160-80-40 meters. One leg is 67' and the other 55'. Installs as an inverted-V. **HRO Price $59.95**

International Antennas



NEW!

Double Bazooka

These 1/2 wave antennas are constructed with a flat-top of 50 Ω coax and a section of open-wire line at each end. The shield is split in the middle, but the center conductor and insulation are left intact. The feedline connects to the split shield which becomes the radiating element. This results in quiet, broadband operation with 98% efficiency and 50Ω feedpoint. A balun is not required. Mounts horizontally or as an inverted V. Handles legal RF power limit. Has a weather proof center insulator with coax connector. The 80 meter version will operate efficiently on all bands when using an antenna tuner (not supplied).

Model	Description	HRO Price
IAC-80M	3.5 MHz (750-80M) 121 ft long	$135.95
IAC-40M	7 MHz (40M) 64 ft long	$115.95
IAC-160M	160M, 248 ft long	$195.95

The OWL

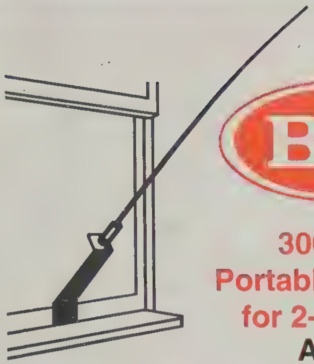
Want to keep those birds off your antenna system?

The OWL is just the trick. Mount this fella on top of your tower and the birds will stay away.

HRO Price $19.95

HF & OSCAR ANTENNAS

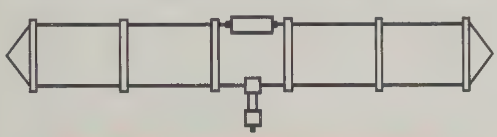
B&W



300 Watt Portable Antenna for 2-40 Meters

AP-10

Designed especially for renters, travelers and restricted communities. Stainless steel whip (51"), insulated counterpoise wire, aluminum bracket/clamp and 10 feet of coax. Included set of loading coils for 40, 30,20,15 and 10 meters. No coils needed for 6 or 2 meters. Also useful as an emergency antenna. **HRO Price $69.95**



Broadband Folded Dipoles

Barker & Williamson's unique patented design brings you true continuous coverage of 1.8 - 30 MHz in an antenna only 90 feet in length! These very low noise dipoles have an SWR of less than 2:1 from 1.8-30 MHz.

Install as flat, inverted vee, or sloper. Antennas come completely assembled. They are constructed of #14 stranded wire, copperweld or stainless steel. 2KW PEP SSB / CW ICAS. 50 Ohm input with SO-239. No antenna tuner required.

Model	MHz	Feet	Wire	HRO Price
BWD-1.8-30	1.8-30	90	Copperweld	$179.95
BWDS-1.8-30	1.8-30	90	Stainless	$289.95
AC-5-30	5-30	65	Copperweld	$189.95
ACS-5-30	5-30	65	Stainless	$269.95
AC-2-22	1.8-22	185	Copperweld	$289.95

YAESU

HF Dipole Antenna

YA-30 — $249.95 – HRO Price

The 83-foot YA-30 broadband dipole antenna is designed to provide optimum performance over the frequency range 1.8-30 MHz. The usual requirements for an antenna tuner between the rig and antenna are eliminated by the unique broadband design. Handles 150 watts at an SWR of less than 1.9:1 on the amateur bands. Preassembled and pretuned. Can be installed as a horizontal flat-top, inverted-V, or sloper. 100 feet of RG-8X with PL-259 included.

HF / VHF / UHF Mobile Antenna

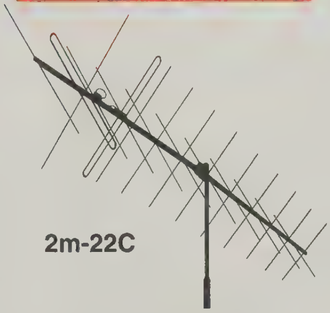
ATAS-100 — $319.95 – HRO Price

The ATAS-100 provides HF/ VHF/ UHF coverage with automatic motorized tuning. Controlled from the transceiver, it adjustes the radiator length for best SWR. **Compatible with Yaesu's FT-100 and FT-847.**

KLM

Call for Quotes on KLM

Oscar



2m Circular

Circular polarized models for 2m: **2M-14C** and **2M-22C**. Excellent for Oscar. Circular polarity switch included with each antenna.

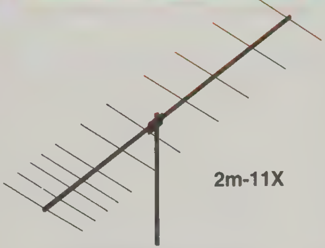
440 MHz Circular

Circular polarized models for 440 MHz: **435-18C** and **435-40CX**. Excellent for Oscar. Circular polarity switch included with each antenna.

Fiberglass Masts

To provide proper horizontal boom insulation for OSCAR operation, KLM has two fiberglass masts: one 5 feet; the other 7.5 feet. Care should be taken in selecting the elevation rotator. The masts are too large for the Alliance U110 which is sometimes used. The masts will work with the Yaesu rotators.

VHF/UHF Beams



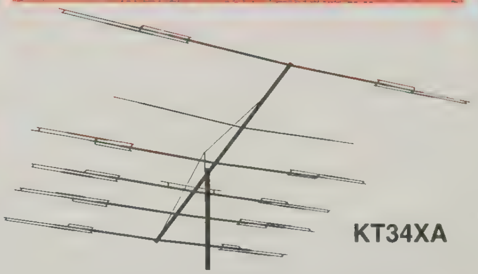
2-Meter Beams

Models 2M-16LBXM, 2M-11, 2M-4X.

440 MHz Beams

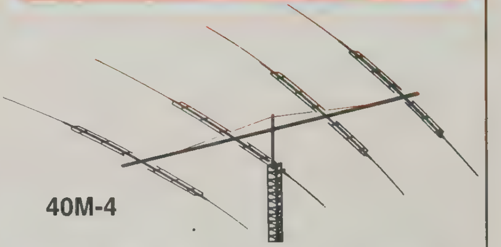
Models 432-16BA, 432-30LBX, 440-14, & 440-6.

HF Tribanders



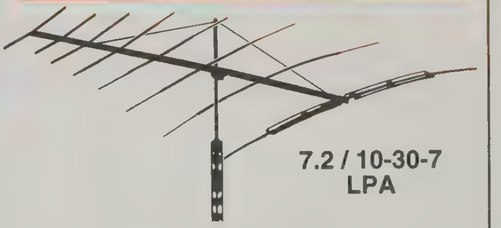
The KT-34A and KT-34XA are pacesetters for triband performance. The four element KT-34A offers an unusually compact solution for a three-band high performance installation. The six element KT-34XA outperforms all other commercially available tribanders. The performance of these antennas comes from the application of lossless linear loading and high-Q air capacitors.

HF Monobanders



"World Class Extra" antennas are designed to satisfy the serious DX operator. The **80M-3**, **40M-4** and the 20m, 15m and 10m 6-element monobanders offer ultimate performance with no compromises. They are designed to achieve maximum gain, bandwidth and front-to-back ratios. All World Class Extra antennas use nonresonant Phillystran cable for element and boom-support.

HF Log Periodic



Log periodics offer extended coverage of the amateur bands. The 10-30-7 LPA covers 20, 15, & 10m plus the WARC bands. The addition of a 40M-1 dipole provides 40m as well and the antenna is the 7.2 / 10-30-7 LPA. For continuous coverage from 6-30 MHz use the 6-30-15 LPA. The 12-8 LPA covers 6-12 MHz.

HF Vertical

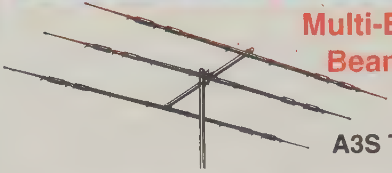
160V

Use this center load 160m vertical with ground or radials. A compact solution to your 160m needs.

CUSHCRAFT

World Ranger Series

Multi-Band Beams



A3S Tri-Band

The four-element A4S with stainless steel hardware outperforms other beams in day-to-day operation and the tough competition of contests. It has achieved the success of DXCC in only two days. The combination of precisely tuned traps with excellent spacing to element length ratios make the A4S a proven winner. Designed for easy assembly, the A4S is light weight, built to last and has a clean profile to reduce wind load. The A3S, with all stainless steel hardware, is the most popular three element, three-band beam available today. It has plenty of gain and good front-to-back ratio. The A3S can be mounted on a lightweight tower and rotator in a very small space. Rugged design features insure many years of trouble-free operation.

A3S	10, 15, 20 m, 3-element
A4S	10, 15, 20 m, 4-element

HF Director

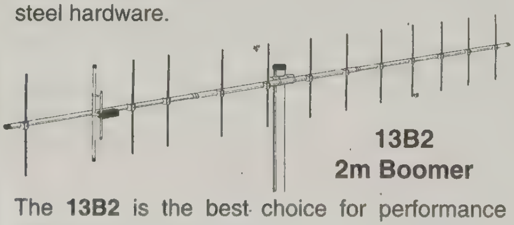
The **MA-5B** multiband HF antenna provides 5 band directivity in a package small enough to be mounted on a tripod. Covers 10,12,17,17 and 20 m with one coaxial feed point. Turn with lightweight TV rotator.

VHF-UHF Tri-Band Yagi

The **A627013S** gives those with limited tower or mast space a directional antenna for the 3 most popular bands, 6m, 2m and 70cm. Operating on a single boom, many problems of degraded antenna performance have been solved.

VHF / UHF Boomers

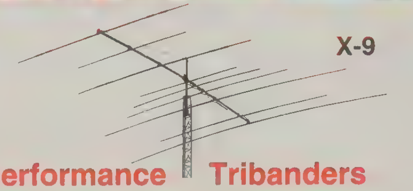
The Cushcraft Boomer Series of high performance Yagis has been the industry standard for more than two decades. They have established new VHF / UHF distance records and their computer-based design has become the favorite choice for SSB, FM and packet. All boomers have stainless steel hardware.



13B2
2m Boomer

The **13B2** is the best choice for performance across the 2 meter band. Its 15' boom makes it the most popular 2 meter Yagi worldwide.

Big Thunder Series



X-9

Performance Tribanders for 10, 15, 20m DX

The X9 and X7 triband Yagis are setting new standards in radiating performance and mechanical reliability. Computer modeling technology has created a superior electrical design with elegant mechanical hardware and assembly techniques. The yagis are designed to 100+ MPH wind survival with a 1.25 safety factor. Traps were eliminated from the driven elements and reflectors using 4L log cell design. Traps on the lower current directors increase gain and sharpen pattern. Optional add-on kits for 40 meters are available (X740 and X790 for the X7 and X9 respectively).

VHF / UHF Yagis

6 Meter Yagis

Enjoy the new excitement of the 6 meter band with an S-series yagi. Computer aided modeling and stainless steel hardware were used by Cushcraft to optimize the performance of our popular 6 meter yagis.

A50-3S	3 element	50-54 MHz	6' boom
A50-5S	5 element	50-54 MHz	12' boom
A50-6S	6 element	50-54 MHz	20' boom

2m / 70cm Dual Band

Increase your range by selecting one of our Cushcraft dual band Yagis. Direct more of your output power when transmitting while reducing interference and increasing signal strength when receiving. Select the antenna for your station depending on your distance requirments.

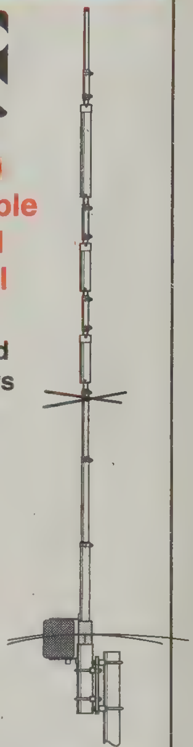
A270-6S	144-148 / 430-450 Mhz 6 element 2.8' boom 7.8 dB
A270-10S	144-148 / 430-450 MHZ 10 element 6.2' boom 10 dB

Ringo II Base Antennas

Ringo Ranger II antennas have more gain, less wind load, and better mechanical strength than most other antennas. You'll find FM repeater or simplex and packet operation more satisfying with this amazing antenna. Three 5/8 wave radiating elements and an adjustable 1/8 wave phasing stub give 7 dB gain over a 1/4 wave whip. The antenna has RF decoupling radials and is DC grounded for lightning protection.

ARX-2B	135-160 MHz	14' high
ARX-220B	222-225 MHz	9.3' high
ARX-450B	435-450 MHz	4.9' high

HF Vertical



R7000 Upgradable 7 Band Vertical

Now add 80 Meters with R80 Kit

The R7000 includes the ability for you to add on 80 meters with the optional R-80 kit. This vertical design provides you 30 and 40 meters with *No Ground Radials!* Only 24 feet tall, the small footprint and ground independence give you "mount-anywhere" flexibility. Assembly is a snap.

Controlled inductance traps make for easy installation and great all-weather performance.

Performance is great. The low angle of radiation gets you through the pile-ups. Automatic frequency selection and 7 short counterpoise rods lets you use the antenna from your apartment, condo, or motorhome.

R6000 20 Meter - 6 Meter Vertical

The R6000 is a 6 through 20 meter, no ground radial antenna and includes many of the R7000 features. There are no traps on 6, 10 and 15 meters. Typical gain is 3 dBi and handles 1500 watts.

Cushcraft HF Antennas

Model	Bands	Ele	Max F/B dB	Min SWR	Boom Length		Boom Diameter		Longest Ele(Ht)		Turning Radius		Max Mast Dia		Wind Surf Area		Shipping Weight		HRO Price
					FT	M	IN	CM	FT	M	FT	M	IN	CM	SQFT	SQMT	lbs	kg	
X7	20 15 10 meters	7	30	1.1:1	18	5.5	2.5	6.4	37.2	11.3	20	6.1	2 1/2	6.4	7.9	0.73	60	27	$499.95
X9	20 15 10 meters	9	30	1.1:1	28	8.5	2.5	6.4	36.5	11.1	22	6.6	2 1/2	6.4	9.4	9.2	85	38	$669.95
MA-5B		3	22	1.2:1	7.3	2.2	1.5	3.8	17.5	5.3	8.8	2.7			3.22	0.3	26.5	12	$299.95
R6000	20 - 10 + 6 meters	1		<1.2:1					19	5.8			1 3/4	4.4	1.5	0.14	12.5	5.6	$279.95
R7000	40 30 20 17 15 12 10 m	1		<1.2:1					24	7.3			2 1/8	5.4	2	0.19	21	9.5	$379.95
R80 Kit	80m for R7000	1		<1.2:1					34.5	10.5			2 1/8	5.4	4	0.37	7.5	3.4	$129.95
A3S	20 15 10 meters	3	25	<1.2:1	14	4.3	1.5	3.8	27.8	8.5	15.5	4.7	2	5.1	4.4	0.41	30	13.6	$329.95
A743 Kit	40m for A3			<1.2:1					35	10.7	15.5	4.7	2	5.1	0.06	0.06	7	3.2	$129.95
A3WS	17 12 meters	3	25	<1.2:1	14	4.3	1.5	3.8	25	7.6	14.4	4.4	2	5.1	4.1	0.38	26.5	12	$279.95
A103 Kit	30m for A3WS			<1.2:1					32	9.8	14.4	4.4	2	5.1	0.04	0.04	6	2.7	$109.95
A4S	20 15 10 meters	4	25	<1.2:1	18	5.5	2	5.1	32	9.8	18.4	5.6	2	5.1	5.5	0.51	38	17.2	$419.95
A744 Kit	40m for A4S			<1.2:1					35	10.7	18.4	5.6	2	5.1	0.3	0.03	7.5	3.4	$129.95
ASL2010	20 17 15 12 10 m	8	20	<1.2:1	18	5.5	2	5.1	38	11.6	19.3	5.9	2	5.1	10.1	0.94	59	26.7	$749.95
TEN-3	10 meters	3	25	<1.2:1	8	2.4	1.4	3.5	18	5.5	9.8	3	2	5.1	2	0.19	10.5	4.8	$129.95
10-4CD	10 meters	4	30	<1.2:1	16	4.9	1.8	4.4	17.5	5.3	11.5	3.5	2	5.1	3.1	0.29	25	11.3	$239.95
15-4CD	15 meters	4	30	<1.2:1	20	6.1	2	5.1	23.3	7.1	15.4	4.7	2	5.1	4.5	0.42	31	14.1	$299.95
20-3CD	20 meters	3	30	<1.2:1	20	6.1	2	5.1	36	11	20	6.1	2	5.1	5.5	0.51	37	16.8	$389.95
20-4CD	20 meters	4	30	<1.2:1	32	9.8	2.1	5.4	36	11	23.8	7.3	2	5.1	8.1	0.75	57	25.8	$469.95
XM240	40 meters	2	25	1.1:1	22	6.7	2.5	6.3	43	13.1	24.3	7.4	2.5	6.35	5.5	0.51	59	26.8	$529.95
XM510	10 meters	5	30	1.1:1	19	5.8	2.5	6.3	18	5.5	11.5	3.5	2.5	6.35	3.4	0.32	90	40.8	$269.95
XM515	15 meters	5	30	1.1:1	24	7.3	2.5	6.3	24	7.3	16	4.9	2.5	6.35	5.2	0.48	135	61.2	$339.95
XM520	20 meters	5	30	1.1:1	35	10.7	2.5	6.3	36.3	11.1	25.9	7.9	2.5	6.35	9.7	0.9	250	113	$599.95
D3	20 15 10 meters	1		<1.2:1					26	7.9	4	1.2	2	5.1	0.9	0.08	11	5	$189.95
D3W	17 12 meters	1		<1.2:1					34	10.4	5	1.5	2	5.1	0.9	0.08	13	5.9	$179.95
D4	40 20 15 10 meters	1		<1.2:1					36	11	5.5	1.7	2	5.1	1.3	0.12	15.5	7	$279.95
D40	40 meters	1		<1.2:1					42	12.8	6.5	2	2	5.1	1.7	0.16	15	6.8	$229.95
AR-10	10 meters	1		<1.2:1					17.6	5.4			1 1/4	3.2	1 2/3	0.16	5	2.3	$59.95

Cushcraft VHF / UHF Antennas

Call for Quotes on Cushcraft Antennas Not Shown

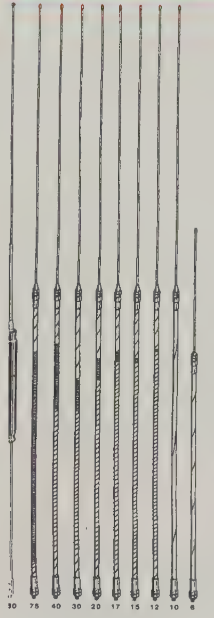
Model	Frequency Coverage	Ele	Max F/B dB	Conn	Polarization		Boom Length		Longest Ele(Ht)		Turning Radius		Max Mast Dia		Wind Surf Area		Shipping Weight		HRO Price
					Horz	Vert	FT	M	FT	M	FT	M	IN	CM	SQFT	SQMT	lbs	kg	
124-WB	144-148	4	24	U	Y	Y	4	1.2	3.4	1	4	1.2	2	5.1	0.34	0.03	3.5	1.6	$69.95
13B2	144-148	13	26	U	Y	Y	15	4.6	3.4	1	8.9	2.7	2	5.1	1.8	0.17	9.5	4.3	$109.95
13B2N	144-148	13	26	N	Y	Y	15	46	3.4	1	8.9	2.7	2	5.1	1.8	0.17	9.5	4.3	$139.95
26B2	144-148	26	26	U	Y	Y	15	4.6	3.4	1	10.4	3.2	2	5.1	4.8	0.45	25	11.3	$339.95
17B2	144-145	17	26	N	Y	N	31	9.4	3.4	1	17.3	5.3	2	5.1	3.9	0.36	18	8.2	$179.95
224-WB	222-225	4	24	U	Y	Y	3	0.09	2.2	0.7	3	0.9	2	5.1	0.23	0.02	2.5	1.1	$66.95
225-WB	222-225	15	24	U	Y	Y	10	3	2.2	0.7	5.8	1.8	2	5.1	0.95	0.09	6.5	2.9	$124.95
719-B	430-450	19	25	N	Y	Y	13.5	4.1	1.2	0.4	7.3	2.2	2	5.1	1.2	0.11	7.5	3.4	$129.95
729-B	430-440	29	25	N	Y	N	22.2	6.8	1.2	0.4	12.5	3.8	2	5.1	2.2	0.2	11.5	5.2	$189.95
A50-3S	50-54	3	20	U	Y	N	6	1.8	9.8	3	6	1.8	2	5.1	1.8	0.17	8.5	3.9	$94.95
A50-5S	50-54	5	24	U	Y	N	12	3.7	9.8	3	7.5	2.3	2	5.1	2.7	0.25	13	5.9	$139.95
A50-6S	50-54	6	26	U	Y	N	20	6.1	9.8	3	11	3.4	2	5.1	4.5	0.42	22	10	$239.95
617-6B	50-51	6	30	U	Y	N	34	10.4	9.5	2.9	17.7	5.4	2	5.1	4.8	0.45	32	14.5	$319.95
A148-3S	144-148	3	25	U	Y	Y	2.8	0.9	3.3	1	2.8	0.9	2	5.1	0.27	0.03	3	1.4	$45.95
A144-10SN	144-146	10	24	N	Y	Y	12	3.7	3.3	1	6	1.8	2	5.1	1.2	0.11	7	3.2	$89.95
A148-10S	144-148	10	24	U	Y	Y	12	3.7	3.3	1	6	1.8	2	5.1	1.2	0.11	6	2.7	$79.95
A148-20S	144-148	20	24	U	Y	Y	12	3.7	3.3	1	6.6	2	2	5.1	2.8	0.26	15	6.8	$199.95
A148-20T	144-148	20	20	U	Y	Y	10.8	3.3	3.3	1	6.8	2.1	1.5	3.8	1.4	0.13	7.5	3.4	$99.95
A430-6SN	430-440	6	18	N	Y	Y	2.9	0.09	1.1	0.3	2.9	0.9	2	5.1	0.3	0.03	2.5	1.1	$89.95
A449-6S	440-450	6	18	U	Y	Y	2.9	0.09	1.1	0.3	2.9	0.9	2	5.1	0.3	0.03	2.5	1.1	$56.95
A430-11S	430-440	11	20	U	Y	Y	4.2	1.3	1.1	0.3	2.8	0.9	2	5.1	0.39	0.04	3.5	1.6	$81.95
A430-11SN	430-440	11	20	N	Y	Y	4.2	1.3	1.1	0.3	2.8	0.9	2	5.1	2/5	0.04	3.5	1.6	$95.95
A449-11S	440-450	11	20	U	Y	Y	4.2	1.3	1.1	0.3	2.8	0.9	2	5.1	0.39	0.04	3.5	1.6	$81.95
A270-6S	144-148	3	20	U	Y	Y	2.8	0.09	3.4	1	2.8	0.9	2	5.1	0.3	0.03	3.5	1.6	$59.95
	430-450	3	18	U															
A270-10S	144-148	5	20	U	Y	Y	6.2	1.9	3.4	1	6.2	1.9	2	5.1	0.73	0.07	5	2.3	$88.95
	440-450	5	18	U															
A627013S	6m,2m,70cm	5	20	U	Y	Y	8.8	2.56	9.7	3	6.16	1.87	2	5.1	2.52	0.23	9.5	4.3	$169.95
AR-6	50-54			U	N	Y			10.1	3.1			1.25	3.2	0,37	0.03	4	1.8	$67.95
AR-2	135-160			U	N	Y			3.9	1.2			1.25	3.2	0.21	0.02	2	0.9	$47.95
AR-450	440-460			U	N	Y			1.4	0.42			0.75	0.88	0.1	0.01	2	0.8	$39.95
ARX-2	137-160			U	N	Y			9.3	2.8			1.25	3.2	0.33	0.03	2.5	1.1	$46.95
ARX-2B	134-164			U	N	Y			14	4.3			1.25	3.2	0.5	0.05	3.5	1.6	$55.95
ARX-220B	220-225			U	N	Y			9.3	2.8			1.25	3.2	0.3	0.03	3	1.4	$69.95
ARX-450B	435-450			U	N	Y			5	1.5			1	1.5	0.2	0.02	2	0.9	$59.95

MOBILE ANTENNAS

Valor

pro·am™

HF Mobile Antennas



PHF Series

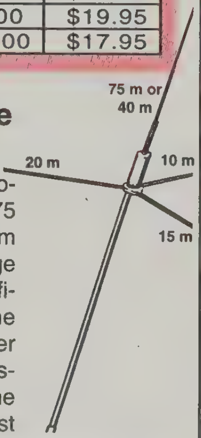
If you're ready to experience home station performance and great HF DXing on the open road, then gear up with Pro-Am's monoband PHF series mobile antennas.

The series consists of a black fiberglass lower section with integral coil and an adjustable (and removable) stainless steel whip (except for the PHF160). They are rated at 250 watts PEP and built to withstand hard use. Standard 3/8x24 threads. Total assembled length on all models 96" (except PHF6 at 58").

Model	Band (meters)	Band Width (kHz)	HRO Price
PHF160	160	12	$79.95
PHF75	75	36	$21.95
PHF40	40	60	$19.95
PHF30	30	100	$17.95
PHF20	20	150	$19.95
PHF17	17	175	$19.95
PHF15	15	200	$19.95
PHF12	12	300	$19.95
PHF10	10	500	$19.95
PHF6	6	1000	$17.95

Five-Band HF Mobile

Model AB5



Pro-Am's heavy-duty HF mobile slim-line antenna covers 75 m, 40 m, 20 m, 15 m, and 10 m amateur bands. Heavy-gauge copper wire wound on 3/8" fiberglass, with nickel-chrome brass fittings and 17-7 taper ground stainless steel whips assure dependable operation. The 4' whip is field tunable for lowest VSWR and double locked with stainless steel set screws. The 3/8-24 ferrule fits standard mobile mounts. Power rated at 250 watts P.E.P. Approximate 8' length. **HRO Price $99.95**

VHF / UHF On Glass

Glassmaster™ Mobile Antennas

Pro-Am's on-glass antennas feature a rugged copper plated whip with black finish and an interior coupler box with adjustable slot to fine tune the SWR. Power rated at 50 watts, they come with 14' of RG58 coax, a PL-259 connector, and mounting package for easy, no hole installation. The dual-band model GM270 covers 2 meters and 440 MHz.

		HRO Price
GM144	144-148 MHz 2 m	$19.95
GM270	2 m / 70 cm Dual Band	29.95

VHF / UHF Dual-Band

Cover-It-All Dual-Band Antennas

Cover It All with a 19" stainless steel whip antenna. Its 1-1/8" threads match Pro-Am's mounts and 3/4" hole Motorola TAD/TAE mounts. The antenna covers 144-148 MHz and 435-450 MHz with less than 2:1 SWR. Handles up to 150 watts.

		HRO Price
MO144-440	2m / 70cm Dual Band	$16.95

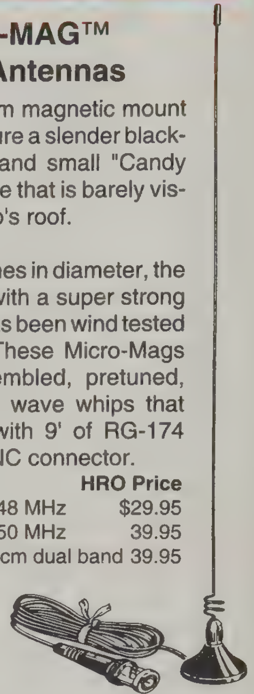
Magnetic Cover-It-All Dual-Band Antennas

These 2 meter and 70 cm dual band antennas that Cover It All come with magnetic mount kits. The 19" stainless steel whip has a 3" magnetic mount and 12' of RG58 cable with BNC or PL259 connector. Black finish.

		HRO Price
PM144-440 BN	BNC Connector	$16.95
PM144-440	PL-259 Connector	$14.95

Mag Mount Antennas

MICRO-MAG™ Mobile Antennas

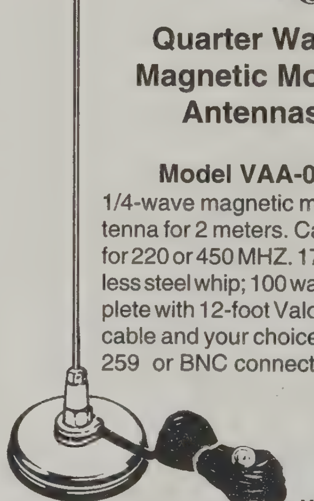


These ultra trim magnetic mount antennas feature a slender black-chrome whip and small "Candy Kiss" style base that is barely visible on an auto's roof.

Only 1-1/8 inches in diameter, the base is fitted with a super strong magnet that has been wind tested to 110 mph. These Micro-Mags are fully assembled, pretuned, low-profile 1/4 wave whips that are supplied with 9' of RG-174 coax with a BNC connector.

		HRO Price
MM144B	144-148 MHz	$29.95
MM450B	440-450 MHz	39.95
MM270B	2m/70cm dual band	39.95

Quarter Wave Magnetic Mount Antennas



Model VAA-002

1/4-wave magnetic mount antenna for 2 meters. Can be cut for 220 or 450 MHZ. 17-7 stainless steel whip; 100 watts; complete with 12-foot Valor-Flex™ cable and your choice of a PL-259 or BNC connector.

		HRO Price
VAA-002	PL-259 Connector	$23.95
VAA-002 BNC	BNC Connector	$27.95

VHF / UHF Mobile Antennas

Magnet Mount Antennas

When You Want the Best

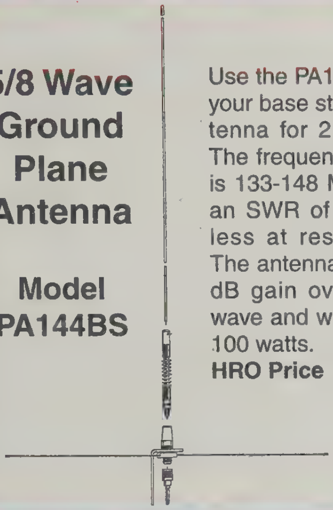
Model	Frequency	Gain	Lgth	VSWR	Max Power	HRO Price
PA144M	144-148 50-54 MHz	3dB unity	49"	<1.5:1	100 W	$39.95
PA220M	220-225 MHz	3 dB	30"	<1.5:1	100 W	$39.95
PA440M	440-450 MHz	4 dB	22"	<1.5:1	100 W	$39.95
PR270M	144-148 MHz 440-450 MHz	Unity 2.1 dB	19"	<1.5:1	100 W	$39.95

These Valor antennas utilize Stainless Steel whips and powerful 2-1/2 pound magnets. Each includes 17' of RG58 cable with a PL259 connector.

2 Meter Base Antenna

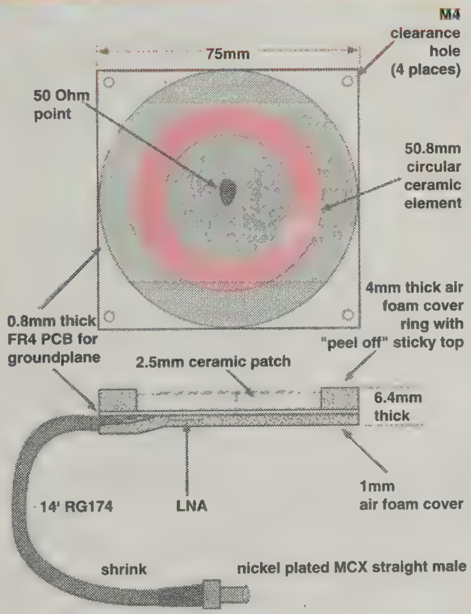
5/8 Wave Ground Plane Antenna

Model PA144BS



Use the PA144BS as your base station antenna for 2 meters. The frequency range is 133-148 MHz with an SWR of 1.5:1 or less at resonance. The antenna has a 3 dB gain over a 1/4 wave and will handle 100 watts.
HRO Price $19.95

GPS Antenna


M4 clearance hole (4 places)
75mm
50 Ohm point
50.8mm circular ceramic element
0.8mm thick FR4 PCB for groundplane
4mm thick air foam cover ring with "peel off" sticky top
2.5mm ceramic patch
6.4mm thick
14' RG174
LNA
1mm air foam cover
shrink
nickel plated MCX straight male

Patch Antenna

Model GPS-1

The GPS-1 is designed for GPS receiving at 1575.42 MHz. It is a slim line microstrip ceramic antenna just 75mm square. It has right hand circular polarization, an azimuth coverage of 360 degrees and an elevation coverage of 0 to 90 degrees. The LNA is a 27 dB gain with a noise figure of 1.15 dB. The GPS-1 weighs only 4.5 oz. It has four mounting holes and is supplied with 14' of RG-174U cable with a nickel plated straight MCX connector. **HRO Price $49.95**

Antenna Matcher

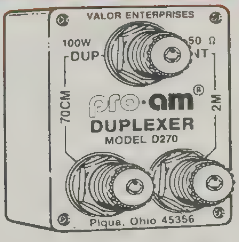
IN
OUT
HF MOBILE ANTENNA MATCHER
MODEL PA910

Mobile Model PA910

The PA910 is a compact mobile antenna matcher designed to be used at the base of your mobile HF whips for the 10-80 meter bands. It provides maximum power transfer so your SWR will be lower and your radio will run cooler and more efficiently. The unit is easy to use, just install in-line and adjust. **HRO Price $19.95**

Duplexer

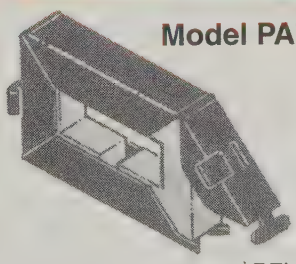
Model D270


VALOR ENTERPRISES
100W
DUP
50 Ω
ANT
70CM
2M
pro·am®
DUPLEXER
MODEL D270
Piqua, Ohio 45356

Duplexer for two band antennas. Provides cross-band operation with a 2m / 70cm antenna. Power rated up to 100 watts with 50 Ohm impedance.
HRO Price $27.95

RF Choke Kit

Model PA701

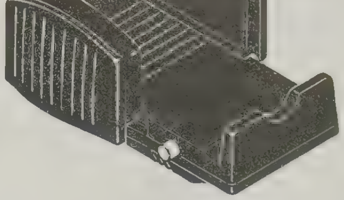


The PA701 eliminates RFI. It's as simple as winding the offending cable around the snap suppressing toroid. Chokes can be stacked as needed. Package of 2 covers .5 to 200 MHz.
HRO Price $14.95

Portable Radio Cradle

Universal

Model PAPC



The PAPC attaches AMPS plate of the FLEX10P or similar mounts. It securely holds portable radios from 1.375" to 2.875" wide. **HRO Price $9.95**

Flexible Cradle Mount

Model FLEX10P

The FLEX10P is a 10" vinyl clad flexible mount with a right angle base and AMPS top plate. Use with the PAPC shown above. **HRO Price $14.95**

Connectors

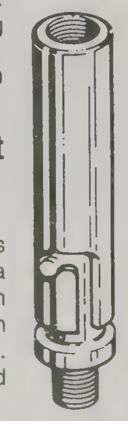
SO-239 Connector

Model 105AD

Mount Assembly: Heavy duty 3/8 SO-239 Connector, nickle plated. No chance of rust or corrosion. The brass hex is chrome plated. For plug-to-plug connections.
HRO Price $5.99

Quick Disconnect

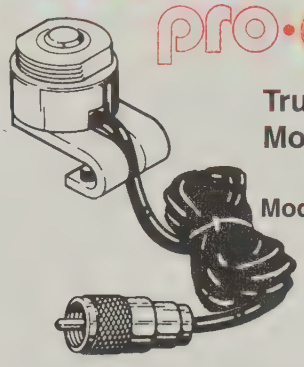
Model P103



The P103 quick disconnect is spring loaded for fast antenna removal. It is constructed from chrome-plated brass with stainless steel spring and pin. Use for 3/8" x 24 antennas and mounts. **HRO Price $6.95**

MOBILE MOUNTS

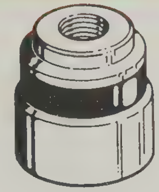
Valor pro·am™



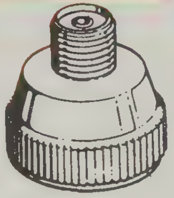
Trunk Lip Mounting Kit
Model PAT2

This low profile, no-hole trunk mount has the Mototola Style 1-1/8"-18 thread for amateurs who demand the very best and professional quality. **HRO Price $27.95**

Adapters



NMO to 3/8x24 Adapter
Model PAN38

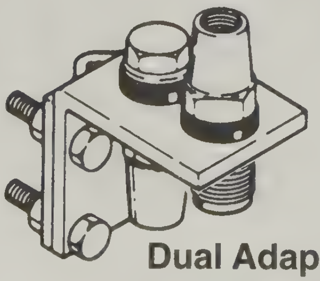


NMO to SO239 Adapter
Model PANSO

Need a different mount for your mobile antenna? Use one of these adapters to convert from the mount you have to the one you need.

The **PAN38** converts an NMO to a 3/8x24 mount. **HRO Price $14.95**

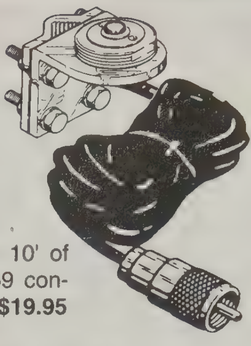
The **PANSO** converts an NMO to an SO239. **HRO Price $14.95**



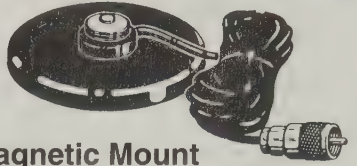
Dual Adapter
Model DAK-AD

The DAK dual adapter with 1 lug and 1 SO-239 accepts 2 antennas for vertical or horizontal dipole. (Note: Antennas are sold separately.) **HRO Price $9.95**

Mirror Mount
Model SS100MOT



Stainless steel 3-way mirror mount with a Motorola style mounting.. Includes 10' of cable with a PL-259 connector. **HRO Price $19.95**



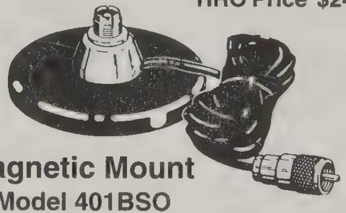
Magnetic Mount
Model PAM

A series of low profile magnetic mounts for antennas with Motorola TAD and TAE 1-1/8" x18 threads.

PAM is 3-3/4" with 12' RG58 to PL-259. **HRO Price $19.95**

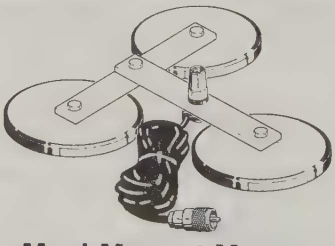
PAM2 is 3-1/4" diameter. **HRO Price $19.95**

PAM4 is a 5" diameter mount with 17' of RG58 to a PL-259 connector. **HRO Price $24.95**



Magnetic Mount
Model 401BSO

5" diameter magnetic mount with SO-239 on top. Pre-wired with 12' RG58 to PL-259 connector. Black. **HRO Price $29.95**

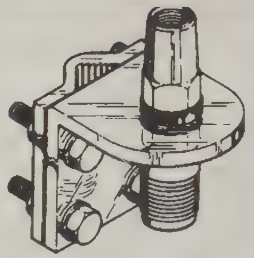


Maxi-Magnet Mount
Model MM3401

Maxi-Magnet mount kit has three 5" (401) magnets properly spaced on a heavy duty aluminum frame. The MM3401 is pre-wired to Valor's patented wafer termination with 12' of RG58 coax and PL-259 connector. Accepts standard 3/8x24 antennas. **HRO Price $39.95**

Model MM3401NMOB NEW!

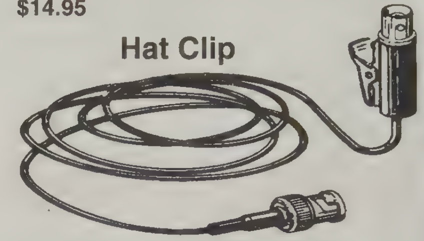
Sames as the MM3401 with NMO mount and all black. **HRO Price $49.95**



Stainless Mount
Model SSI00AD

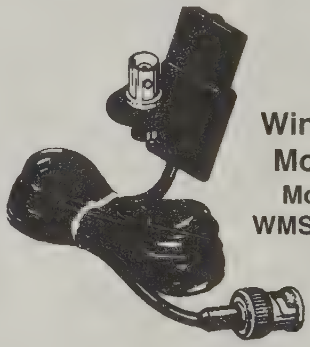
Three-way mount installs horizontally, vertically, or flush. Heavy-duty 3/8 S0-239 connector. All stainless steel hardware and chromeplated brass hex. Fits all standard 3/8-24 antennas up to 48". For plug to plug hookups. **HRO Price $14.95**

Hat Clip



Model BNC-HC

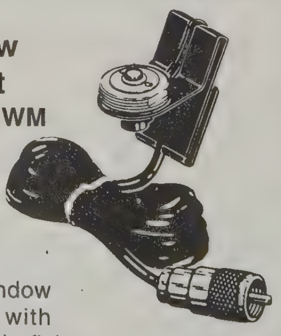
BNC Hat Clip with 4' of cable and a BNC connector. **HRO Price $14.95**



Window Mount
Model WMSLBNC

Slim Line window mount kit with BNC connectors and 7' RG188 cable. Easily mounts to any vehicle window. Features black finish window mount, BNC connectors, and high tech design. Ideal for handheld radios for amateur, CB, scanner and commercial users who need extra performance. **HRO Price $34.95**

Window Mount
Model MOWM



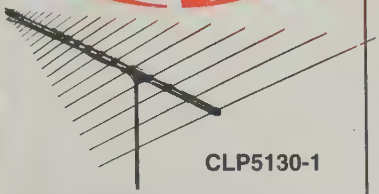
Popular window mount kit with Motorola style fittings. 6' RG58 cable, PL-259 connector. **HRO Price $18.95**

BASE ANTENNAS

WEATHER STATIONS

Log Periodic

CREATE



CLP5130-1

The **CLP5130** antennas are high gain, wide band VHF/UHF log periodic beams for horizontally polarized base station use. Covers amateur bands from 50–1300 MHz, FM broadcasting, scanning, VHF / UHF TV, air band communications, government and business bands.

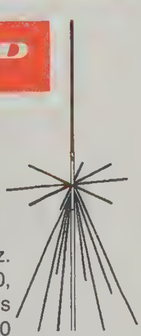
Forward gain is 10 to 12 dB – 10 to 16 times the gain of a nondirectional discone type antenna. The VSWR is less than 2.0:1 across the band.

The high-quality aluminum antennas have a boom design that allows movement of the phasing line. Distortions in the vertical and horizontal planes are minimized and element adjustment is not necessary. The boom-to-mast bracket is made of a lightweight and rugged magnesium alloy.

	CLP5130-1	CLP5130-2
Frequency	50-1300 MHz	108-1300 MHz
No. Elements	23	19
Power	500W PEP	500W PEP
Forward Gain	10-12 dBi	10-12 dBi
Front/Back	15 db	15 db
Longest element	9' 10"	4' 6"
Boom length	5' 9"	4' 6"
HRO Price	$499.95	$399.95

DIAMOND ANTENNA

D-130J Super Wideband Discone



Monitor 25-1300 MHz. Transmit on 50, 144, 430, 1200 MHz. All stainless steel. Input power 200 watts. Impedance: 50 ohms. VSWR: 1.5:1. Length: 1.7 meters. Mounts on 1" to 2" masts. **HRO Price $89.95**

Swiech Communications Systems

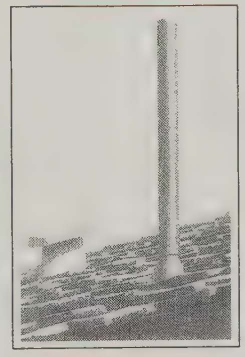
Beams for 2 Meters and 1.2 GHz

The **COY2M3EL** is a black anodized, light weight 3 element beam antenna for 2 meters. It provides a 6.1 dB forward gain and an H-plane beam-width of 80 degrees. The bandwidth is 144-148 MHz with an SWR <1.7 at the band edges. Impedance is 50 ohms and it handles 200 watts. A great antenna for packet, public service, camping, T-hunting, Field Day or any portable operation.

	HRO Price
COY2M3EL	**$64.95**
COY2M4EL	**$74.95**
COY1.2 Beam	**$109.95**

Ventenna™

Can you spot the antenna?



Neither can your neighbors.

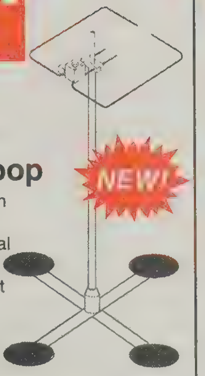
At last a solution to antenna restrictions. The Ventenna™ quickly slips over an existing vent pipe and your signal really gets out! It is nearly invisible and is one of the most rugged antennas made. The **VT-27** dual-band is for 2 m and 440 MHz. Single band models are for 2 m, 220 MHz and 440 MHz.

Model	Bands	HRO Price
VT-14	2 meters	**$49.95**
VT-22	220 MHz	**$49.95**
VT-44	440 MHz	**$49.95**
VT-27	2 meter & 440 MHz	**$74.95**

M²

2m HO Loop

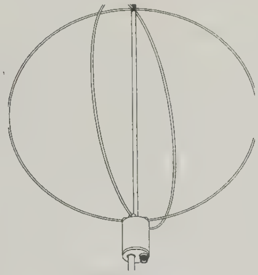
NEW!



Shown with optional mag mount

HRO Price $39.95
Colored versions higher

Nothing satisfies more than our 2m "HO" Loop for horizontal performance. This easily adjustable antenna has plenty of bandwidth. It will handle a KW plus. Stack antennas for more gain. The Loop has durable construction for "tree bashers." Have no weather worries with the bright aluminum standard finish or an anodized finish in gold, black, turquoise or green.



EB-144 2m Eggbeater

HRO Price $112.95

The Eggbeater offers exciting new performance characteristics for fixed and mobile operations. The EB-144 produces smooth omnidirectional horizontal polarity at the horizon. Above the horizon, the pattern transforms to right hand circular off the top making it a natural for OSCAR use. No rotation or steering is required.

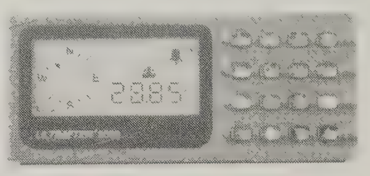
MAXRAD

These quality VHF / UHF antennas are available. Please call for models, specifications, & quotes.

Weather Stations

Ultimeter 800

The Ultimeter 800 has nearly all the features of the Ultimeter 2000 except the barometer. It has wind speed, wind direction, outdoor temperature, indoor temperature, wind chill temperature, time, date, automatic leap year adjustment and automatic scan mode as standard functions. With optional sensors, rain, outdoor humidity, indoor humidity and dew point reading are available. It automatically stores today's and yesterday's highs, lows and total rain fall. It also stores long term highs and lows. Alarms are provided for high wind, high and low outdoor temperature, high and low indoor temperature. The serial port has three output modes. **HRO Price $239.95**

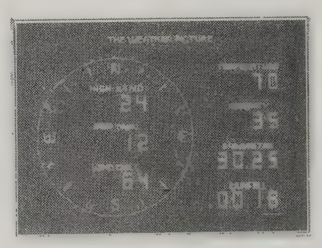


Ultimeter 2000

The Ultimeter 2000 delivers more than 100 weather readings yet it is simple to use. Each key is labeled with an icon that indicates its function. Provides wind speed, barometric pressure, temperature, humidity and rain (optional) information. Gives current data as well as today's, yesterday's and long term highs and lows. I/O port for computer connectivity. **HRO Price $379.95**

Ultimeter 100

The Ultimeter 100 automatically stores today's and yesterday's highs, lows and total rainfall so you can compare the readings. Also stores long term high, low and rain information since it was last reset. Has a 3-mode serial port for interfacing telephone, modem or radio reporting. **HRO Price $189.95**



Weather Picture

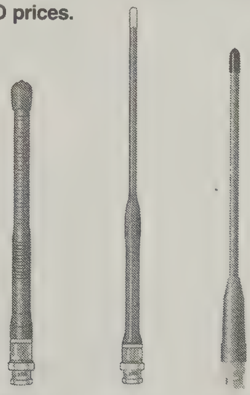
The Weather Picture receives data from an Ultimeter and continuously displays your pre-selected data. The 8 inch compass rose and big 0.8 inch illuminated red numerals are clearly visible day or night. View even from across the room. **HRO Price $169.95 (aluminum version)**

HT ANTENNAS

Kul Duckies & Telescoping Antennas

Larsen

Larsen's line of KulDuckie durable portable antennas are backed with their 3-Year No-Nonsense Warranty. **Call for HRO prices.**



KulDuckies have outstanding transmit range with 1.5:1 VSWR. Made of copper and brass radiators, they are scope tuned to precise frequencies. Constructed with soldered connections, plastisol dip process, injection molded housings, and silver-plated contacts.

Helical

Helical antennas are approximately 8" in length for VHF and 3" for UHF.

HQ Helical

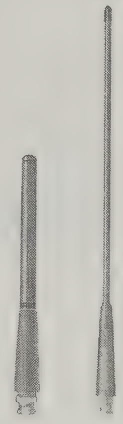
The HQ helical quarter wave antenna offers a higher gain than the regular helical. For VHF only. Length 9-1/2".

Dual Band

Two models cover 2m and 70 cm. Approximate length 8". Model KD3-2/70 has a TNC male connector; Model KD4-2/70 has a BNC male connector.

HW Half Wave

The 1/2-wave allows operation independently of a ground plane. Coils cannot flex and change frequency. HWs have a rigid impedance transformer at the base and a chrome-plated telescoping, black whip with a BNC connector. UHF model length 16-1/2"; VHF model is 11" collapsed and 44-1/2" fully extended.



NCG

Triband Handheld Antenna

NEW!

6 m / 2 m / 70 cm

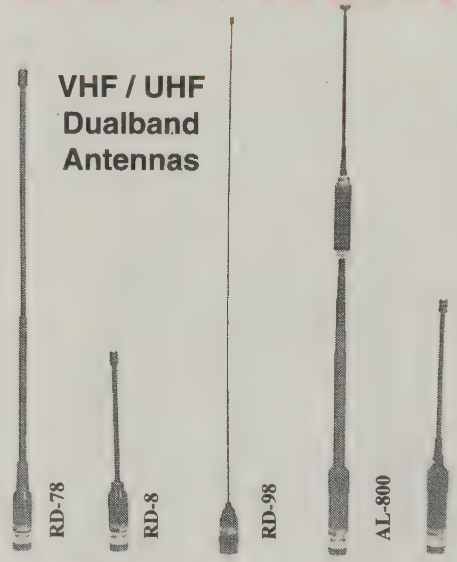
MH-510

$37.95 – Suggested List

Improve stock antenna performance with the MH-510. On 6 m and 2 m it resonates a quarter wave, but on 70 cm it resonates 1-5/8 waves, providing a dramatic improvement in coverage. Gain is 0/0/3.2 dBi. Height of this flexible antenna is 20.75 inches. Especially made with a male SMAconnector for the VX-5R and T-8, it avoids the need for an adaptor.

PREMIER
communications

VHF / UHF Dualband Antennas



Premier Antennas

Model	Description	HRO Price
RD-8	Dual-band HT antenna, 6.5" long, flexible, gold plated BNC connector	$17.95
RD-78	Dual-band HT antenna, 15" long, 2.15 dB / 3.2 dB gain, flexible, gold plated BNC connector	$22.95
RD-9 SMA	2M / 440 thin, 7" SMA antenna	$21.95
RD-98	17" long, 1/16" diameter dual-band HT antenna	$24.95
RD-98 SMA	2M / 440 thin, 17" SMA antenna	$27.95
AL-800	Dual-band telescoping antenna, extends to 34", collapses to 10." Whip replaceable with 9" "rat tail" (included), 3.2/5.5 dB gain	$34.95

ANTENNA MOUNT

HF Mobile Antenna

Bugcatcher

NEW!

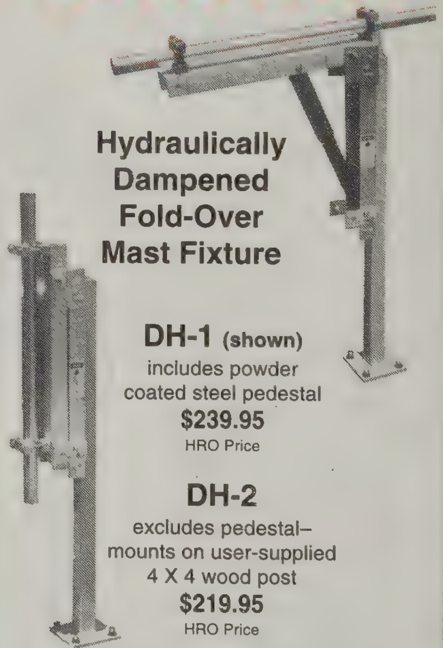
from Texas Radio

The latest in HF mobile antennas now covers 3.5 to 30 MHz plus 6 meters with an optional 6 meter adapter. The antenna featurs an adjustable capacity hat, quick disconnect on the whip, and a longer base mast. The Bugcatcher has high efficiency with up to 7db gain over conventional mobile antennas. Band switching is easy with pre-tuned frequencies on each band. Total length of the antenna is 90 inches.

	HRO Prices
BG-1500 HF	$169.95
BG-1500-6 HF plus 6 m	$185.95

Fold-over Mount

ALPHA DELTA



Hydraulically Dampened Fold-Over Mast Fixture

DH-1 (shown)
includes powder coated steel pedestal
$239.95
HRO Price

DH-2
excludes pedestal–mounts on user-supplied 4 X 4 wood post
$219.95
HRO Price

Now one person can easily raise and lower an HF vertical or small VHF/UHF ground plane antenna 30 seconds. Easily adjust and maintain your antenna, or lower a vertical out of view when it is not in use. Constructed from stainless steel hardware and aircraft grade aluminum, the fixture is designed for verticals up to 29 feet and 25 pounds weight. They are pre-assembled and include a hydraulic damper for safe operation.

HF MOBILE ANTENNAS

OUTbacker®

The Ultimate All-Band HF Mobile Antennas

< Perth & Perth Plus Antennas

HRO Prices: Perth $289.95
Perth Plus $289.95

The Perth covers 10-80 meters and the Perth Plus adds the 6 m and 2m bands. Both are sleek 3-1/2 foot stingers with a 4 foot main shaft where the taps are located. They have a tough, yet flexible fiberglass core, helically wound with copper wire hand tuned to the various "tap" frequency points. Both offer high performance with low wind drag.

Mount them easily on a trunk lip, hatch, or bumper with a standard 3/8 X 24 stud. The stinger retracts into the main shaft for easy stowage. With a proper ground plane, Perth antennas are also suitable for apartment and condo installations.

Outbacker Antenna >

HRO Price $269.95

With the Outbacker™ there is no need to change coils when changing HF bands. The antenna comes in a six foot version that handles up to 300 watts PEP and a four foot Junior model for up to 150 watts PEP.

The antennas are made of fiberglass coated with smooth epoxy resin and polyurethane to provide strength, protection and durability. The pre-tuned copper helical winding has connection sockets constructed of rust-free brass and clearly marked for each band. The antenna covers all bands from 10 to 80 meters.

Mount the antenna with a standard 3/8 X 24 thread. Use Hustlers BM-1 or SSM ball mounts. An optional heavy duty spring and 2 inch base can be mounted at the bottom of the antenna and attached to a PL-259 connector.

Outreach Antenna

HRO Price $349.95

- An efficient portable antenna system for those needing limited-space, deed-restricted, backyard, patio, or field-day installations.
- All bands, 160–10 meters, including WARC.
- Only 12 ft. tall!
- Exceptional performance: 10, 12, and 15 meters are ⁵/₈ wave; all bands are center loaded for peak performance. Compare to ANY whip you have used–you'll be AMAZED!
- Handles 150 watts P.E.P.
- Split 8 foot shaft and 4 foot stinger–antenna breaks down to 4 feet for easy portability.
- Terminates in standard ³/₈ x 24 base.
- Uses Outbacker's® proven band tap system.

Alpha Delta Outpost™ Tripod / Ground Coupler Ground Mount System

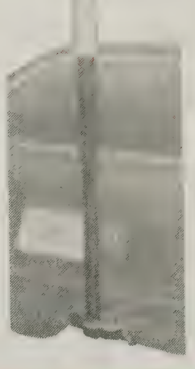
HRO Price $195.95

- Designed to match the base impedance of all Outbacker® antennas.
- Fold-over ³/₈ x 24 SO-239 top mount so antenna will be out of view when not in use.
- Constructed of aircraft 6061-T6 aluminum, stainless steel hardware and wing nuts — NO TOOLS REQUIRED.
- No digging–no holes in ground–no concrete.
- Fold-out legs act as a large capacitor providing proper coupling to the ground and proper base impedance to the antenna.
- Fold-up design for 10-minute installation.

Broadband Mobile HF

T. J. Antenna Co.

Broadbander BB3C All Band Mobile Antenna



The Broadbander BB3C is an all band (10 through 80 meters) motorized antenna that will tune all bands at the flip of a switch. No more adjusting stingers or changing loading coils to switch from one band to another. The antenna is built with a motor driven center loading coil. The coil slides up and down inside a copper mast as you change frequency. The top whip may be any length but 102 inched is recommended. The antenna may be used on mobile homes, RV's and even as a fixed antenna. Top whip sold separately. **HRO Price: $299.95**

Single Band Mobile HF

Ham Sticks®

Ham Sticks® are two-piece monoband antennas consisting of a hollow fiberglass base section and a loading coil wound directly onto the fiberglass and covered with PVC shrink tubing.

The black oxide brass base fitting has 3/8" X 24 male threads that fit most amateur mobile mounts. The top section is a tapered 17-7 PH tempered stainless steel whip that telescopes into the base section for frequency adjustment. The assembled antenna is about 7' long.

Ham Sticks

Model	Band	HRO Price
9175	75 m	$24.95
9140	40 m	$24.95
9130	30 m	$24.95
9120	20 m	$24.95
9117	17 m	$24.95
9115	15 m	$24.95
9112	12 m	$24.95
9110	10 m	$24.95
9106	6 m	$24.95

MOBILE MARK, Inc.
COMMUNICATIONS ANTENNAS

Heliwhips & Kilowhips

The Heliwhip and Kilowhip Series are fiberglass-molded continuously-wound antennas for 10, 15, 20, 40 and 80 meters.

Kilo-whips are high powered versions of the Heliwhips. Power handling is 100 W for the Heli-whip and 1 kilowatt for the Kilowhip.

Mobile Mark Whips

Model	Center MHz	Band-width KHz	HRO Price
HW-80	3.8	50	32.95
HW-40	7.25	100	32.95
HW-20	14.2	250	32.95
HW-15	21.2	500	29.95
HW-10	29	1000	29.95
HW-6	52	2000	29.95
KW-10	28.6	800	49.95
KW-15	21.3	400	49.95
KW-20	14.2	250	49.95
KW-40	7.22	60	49.95

HUSTLER®

Multi-band HF Verticals

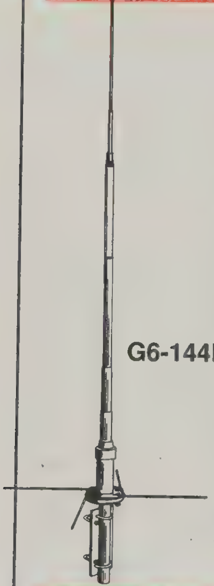
6-BTV / 5-BTV / 4-BTV

Models 6-BTV (10, 15, 20, 30, 40, 75 / 80 meters), 5-BTV (10-80 meters), and 4-BTV (10-40 meters) for base stations. All of these vertical antennas allow full legal limit on SSB or CW. The antennas are constructed of 1 1/4" heavy wall, high strength aluminum. Feed with 50 ohm coax. VSWR 2:1 or better at band edges on 10-40 meters and up to 100 kHz on 75 / 80 meters.

30-MTK

Add the 30 meter band to the 4-BTV or 5-BTV with the 30-MTK. This will provide full band coverage of the 30 meter band and will not affect normal operation of the other bands. The modification is easy to install with all hardware required included. **HRO Price $41.95**

2m Verticals



G6-144B

G7-144

The G7-144 is designed for fixed station or repeater operation. The antenna provides 7dB gain with an extremely low angle of radiation. It is constructed of high strength aluminum and fiberglass using stacked 5/8 wave radiators. Uses a type "N" connector.

G6-144B

The G6-144B is a 6dB gain antenna for base or repeater use. The antenna is totally self supporting and is constructed of high-strength aluminum. Uses an SO-239 connector.

220 & 440 Verticals

G7-220

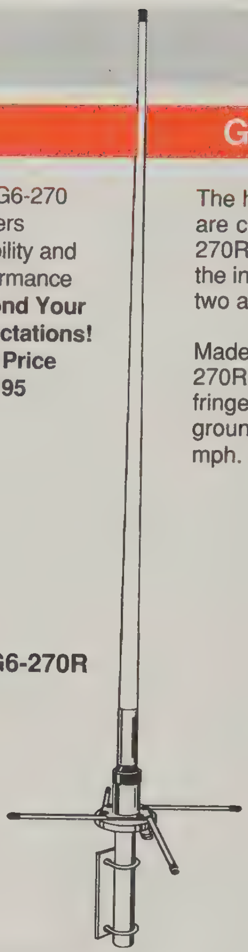
The G7-220 is of similar design and construction as the 2 meter G7-144. It is designed for base or repeater operation, provides 7dB of gain and is constructed of high-strength aluminum and fiberglass. Uses a type "N" connector.

G6-440

The G6-440 is a 6dB gain antenna for base or repeater usage for the 440 MHz band. It is provided with the vertical component assembled. The antenna is constructed from high-strength aluminum and fiberglass. Uses a type "N" connector.

G6-270R Dual Band

The G6-270 delivers reliability and performance **Beyond Your Expectations!**
HRO Price
$169.95



G6-270R

The high performance of our well known G6-144 and G6-440 are combined in our 2 m / 440 dual band vertical, model G6-270R. A sleek, one piece tapered fiberglass radome eliminates the intermodulation and mechanical problems associated with two and three piece UHF radome designs.

Made in the U.S.A. of high quality American materials, the G6-270R offers 6 dBd gain (8.1 dBi) on both bands for outstanding fringe area performance. The antenna is shunt-fed and DC grounded for lightning protection and will survive winds to 100 mph. It is factory tuned for quick and easy installation.

Electrical

Max. Power:	200 watts
Gain:	6 dBd VHF 6 dBd UHF
Bandwidth:	3 MHz VHF 10 MHz UHF
Design:	5/8 over 5/8 VHF 4 x 5/8 UHF Shunt-fed D.C. Ground
Termination:	Type N female

Mechanical

Length:	100 inches
Weight:	6 lbs
Wind Survival:	100 mph
Mounting:	Hardware included for 1-1/2" mast. Mounting plate will accept 2" U-bolts (U-bolts not included)

Hustler Antennas

Model	Bands	Mx Gn	VSWR	Top Hat lgth in (mm)	Height ft (m)	Boom Dia in (mm)	Max Mst in (mm)	Wind load lbs (kg)	Ship Weight lbs (kg)	HRO Price
6-BTV	10-30-80 m	-	1.2:1	20.3 (506)	24 (7.2)	1.3 (31.3)	1.5 (38.1)	31 (14.1)	17	$189.95
5-BTV	10 to 80 m	-	1.2:1	20.3 (506)	25 (7.5)	1.8 (43.8)	1.5 (38.1)	29 (13.2)	17	$159.95
4-BTV	10 to 40 m	-	1.2:1	14.8 (369)	21.4 (6.4)	1.3 (31.3)	1.5 (38.1)	24 (10.9)	15	$139.95
G7-144*	2 m	7 dB	1.5:1	-	15.3 (4.6)	-	1.8 (43.8)	26 (11.8)	10	$169.95
G6-144B	2 m	6 dB	1.15:1	-	9.8 (2.9)	-	1.8 (43.8)	26 (11.8)	7	$129.95
G7-220*	220 MHz	7 dB	1.2:1	-	10.2 (3.0)	-	1.8 (43.8)	26 (11.8)	7	$169.95
G6-440*	440 MHz	6 dB	2.1:1	-	7.3 (2.2)	-	2.0 (50.8)	22 (10.0)	5	$169.95

* Type "N" Connector

Hustler VHF / UHF Mobile Antennas

Model	Band	Max Gain	SWR	Power	Length ft (m)	Weight lbs	HRO Price
RX-440	440 MHz	5.2 dB	1.2:1	100 W	2.3 (.72)	3	$24.95
CGT-144	2 m	5.2 dB	1.15:1	200 W	7.1 (2.1)	2	$51.95
RX-2	2m	3.4dB	1.5:1	100 W	4.2(1.3)	3	$24.95
FX-2	2m	3.4dB	1.5:1	100 W	4.2(1.3)	3	$33.95
SF-2	2 m	3.4 dB	1.2:1	100 W	4.2 (1.3)	1	$14.95
UGM	140-500 MHz	Unity				1	$21.95
SF-220	220 MHz	3.4 dB	1.2:1	100 W	2.6 (.78)	1	$14.95

Call Toll-Free For Hustler Products

VHF / UHF Mobiles

Collinear

The CG-144 and CG-220 are 5.2dB gain collinear antennas for 2m and 220 MHz respectively. These antennas mount with 3/8"x24 thread which will fit the standard Huster mounts. The CGT-144 and CGT-220 are supplied with a heavy duty trunk mount, 17' of coax and PL-259 connector.

5/8 Wave

Hustler manufactures two series of mobile antennas for 2m and 220 MHz and one for 440 MHz. The FX series comes with a heavy duty magnetic mount and the RX series has a standard duty mount. The antennas are base loaded with a 5/8 wave whip. The FX-2, FX-220, RX-2, RX-220 and RX-440 have black bases and chrome whips.

SF-2 / SF-220

These two antennas are for 2m and 220 MHz respectively. Each is a base-loaded 5/8 wave antenna. These antennas will mount to all the Hustler mounts.

UGM

A magnetic-mount antenna for the traveller. Trim it to operate as a 1/4 wave on 2m, 220 or 440. The mount is supplied with 7' of mini-coax and a BNC connector installed. Attaches directly to most hand-helds. The antenna has a chrome base and stainless steel whip.

HF Resonators

There are two types of resonators for HF operation. The **standard** units are rated to 400 watts SSB while the **supers** are rated at 1 KW SSB. In addition to the power differences, the usable band width of the Super resonators is 100 percent wider on some bands. See the resonator table below for details.

Mounting HF Mobiles

The HF resonators described require some consideration when mounting.

Mount

A bumper (BM-1) or ball type (C32, SSM-1 or SSM-2) mount is required. Magnetic or trunk type mounts will not hold the weight or wind load.

Mast

All of the resonators must be mounted on top of one of the Hustler masts (MO-1, MO-2, MO-3 or MO-4). The MO-1 and MO-2 hinge to allow for travel or low clearances. The MO-1 is for deck or fender mounting and folds at 15" above the base. The MO-2 is for bumper mounting and folds at 27" above the base. The MO-3 is a fixed length mast for use where it will not be necessary to fold over the antenna.

Hustler has a new mast, the **MO-4** for installations requiring a short mast. The mast is just 22 inches tall. Use standard resonators and whips on 40 and 75m. Use standard resonators on 10, 15 and 20 meters with the new whips provided with the MO-4.

Hustler Resonators

Model	Type	Band	Power SSB	Bandwidth 2:1 SWR	Weight lbs	HRO Price
RM-10	Standard	10 m	400 W	150-250 KHz	0.41	$15.95
RM-11	Standard	11 m	400 W	150-250 KHz	0.41	$15.95
RM-12	Standard	12 m	400 W	90-120 KHz	0.41	$15.95
RM-15	Standard	15 m	400 W	100-150 KHz	0.42	$15.95
RM-17	Standard	17 m	400 W	120-150 KHz	0.44	$21.95
RM-20	Standard	20 m	400 W	80-100 KHz	0.46	$21.95
RM-30	Standard	30 m	400 W	50-60 KHz	0.84	$24.95
RM-40	Standard	40 m	400 W	40-50 KHz	0.84	$24.95
RM-75	Standard	75 m	400 W	25-30 KHz	1.05	$26.95
RM-80	Standard	80 m	400 W	25-30 KHz	1.05	$26.95
RM-10-S	Super	10 m	1 kW	250-400 KHz	1	$23.95
RM-15-S	Super	15 m	1 kW	150-200 KHz	1.2	$24.95
RM-20-S	Super	20 m	1 kW	100-150 KHz	1.25	$28.95
RM-40-S	Super	40 m	1 kW	50-80 KHz	1.8	$35.95
RM-75-S	Super	75 m	1 kW	50-60 KHz	2.1	$49.95
RM-80-S	Super	80 m	1 kW	50-60 KHz	2.1	$49.95

Mounting Accessories

Trunk Mounts

Three trunk mounts are available (HLM, HOT and TLM). All bases accommodate the 3/8"x24 thread and come with 17' of low-loss coax with connectors installed. The mounts are for use with VHF and UHF antennas. Do **NOT** use with the HF mobile antennas.

The **HLM** is specifically for hatch and slanted back vehicles. It has a built-in 180 degree adjustable swivel. The **HOT** is an easy on/off base–just spin the knob. It also has a 180-degree swivel. The mount cannot be removed while the trunk is closed. The **TLM** requires no holes to install. It mounts on flat, horizontal surfaces. The **RVM** is for recreational vehicles.

Bumper Mount

Use the **BM-1** bumper type mount with all Hustler mobile antennas including HF. It uses two "J" bolts and a stainless steel strap that will fit bumpers up to 18". It will not fit the molded, plastic bumpers found on some vehicles. The mount comes with a stainless steel ball. Use the L14-144 (12 foot) or L14-240 (20 foot) coax sets to attach directly to the bottom of the ball mount.

Other Accessories

C-32	Chrome Plated Ball Mount	**$11.95**
SSM-1	Ball Mount and Spring	**$46.95**
SSM-2	Ball Mount	**$26.95**
SSM-3	Stainless Steel Spring	**$24.95**
RSS-2	Resonator Spring	**$9.95**
QD-2	Quick Disconnect	**$19.95**

Hustler Mounts

Model	Base Thread	Coax ft (m)	Swival	Weight lb	HRO Price
BM-1	3/8" x 24	optional	180°	2	$19.95
HOT	3/8" x 24	17 (5.1)	180°	1.9	$29.95
TLM	3/8" x 24	17 (5.1)		1.9	$20.95
HLM	3/8" x 24	17 (5.1)	180°	1.7	$22.95
RVM	3/8" x 24	17 (5.1)	180°	1.9	$20.95

Mobile Mounts

C-32

C-30

SSM-1

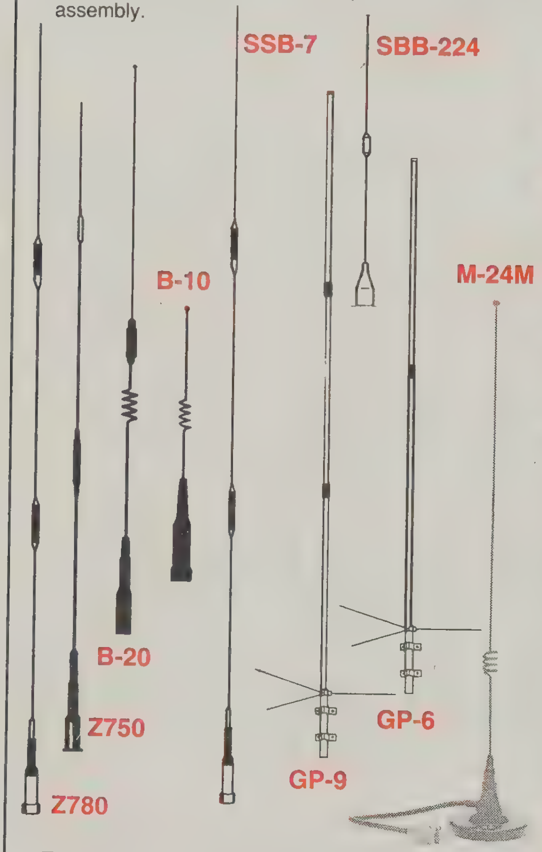
Hustler has a collection of mounts and accessories for attaching your antennas to your vehicle. The most common are described below.

C-32	Chrome-plated ball mount
C-30	Chrome-plated spring
C-29	Stainless steel spring
SSM-1	Professional ball mount and spring
SSM-2	Ball mount
SSM-3	Stainless steel spring
L-14-144	Coax lead 12', PL-259 & lugs for Hustler mounts
L-14-240	Coax lead 20', PL-259 & lugs for Hustler mounts

Dual- & Tri-band VHF / UHF

Comet developed the Super Linear Converter (SLC) to increase actual gain of dual and triband antennas.

- A complete pre-formed phasing coil and phosphorus copper element eliminates additional components and gain loss.
- The SLC is electrically very efficient, providing a low angle of radiation, directly to the horizon.
- Comet sectional antennas use ABS (Transparent to RF) connecting joints for the finest pattern and easiest assembly.

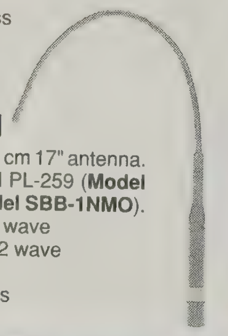


Dual-Band Mag Mount Antenna

Economical black anodized 2m / 440 MHz antenna is 19.5" tall and comes with 13 feet of RG-58/U coax and either a gold-plated PL-259 (**Model M-24M**) or BNC connector (**Model M-24B**) soldered on.

Gain:	146 MHz	1.7 dBi 3/8 wave
	446 MHz	4.1 dBi 1/4 + 5/8 wave
Max Power:		80 Watts
VSWR:		1.5:1 or less
Impedance:		50 Ohm
HRO Price		**$39.95**

Flexible Dual-Band



Convenient, very flexible 2m / 70 cm 17" antenna. Comes with either a gold-plated PL-259 (**Model SBB-1**) or NMO connector (**Model SBB-1NMO**).

Gain:	146 MHz	1.5 dBi 1/4 wave
	446 MHz	2.15 dBi 1/2 wave
Max Power:		60 Watts
VSWR:		1.5:1 or less
HRO Price		**$39.95**

Comet Dual-Band Antennas

MODEL	BANDS	GAIN	MAX PWR Watts	CONN	WGT Lbs' oz"	LEN FT' In"	MAX WIND SPEED MP	HRO Price
Dual Band Base Station Repeater Antennas								
GPX-2010	2m/70cm	9.5/13.2	200	SO-239	7'14"	23'4"	65 w/o guys 90 w/guys	$379.95
GP-9/GP-9N	2m/70cm	8.5/11.9	200	SO/N	5'11"	17'8"	90	$179.95
GP-6	2m/70cm	6.5/9.0	200	SO-239	3'8"	10'5"	90	$139.95
GP-3	2m/70cm	4.5/7.2	200	SO-239	2'12"	5'11"	112	$99.95
Dual Band Mobile Antennas - All Black Anodized								
SBB-7/SBB-7NMO	2m/70cm	4.5/7.0	70	PL/NMO	–	4'7"	–	$74.95
SBB-5/SBB-5NMO	2m/70cm	3.0/5.5	120	PL/NMO	–	3'2"	–	$54.95
SBB-2/SBB-2NMO	2m/70cm	2.15/3.8	100	PL/NMO	–	20"	–	$39.95
B-10/B10NMO	2m/70cm	–/2.15	50	PL/NMO	–	12"	–	$39.95
B-20/B20NMO	2m/70cm	2.15/5.0	50	PL/NMO	–	30"	–	$49.95
SB-214W	2m/220MHz	1.7/3.4	100	PL-259	–	2'11"	–	$49.95
CHL-350	10m/6m	–/2.15	200	PL-259	–	7'0"	–	$79.95
NEW Z Series With Theft-Resistant Lock								
Z750	2m/70cm	2.15/5.5	200	PL-259	–	3'3"	–	$62.95
Z780	2m/70cm	4.5/7.2	150	PL-259	–	5'2"	–	$82.95

Comet Tri-Band Antennas

MODEL	BANDS	GAIN	Max Pwr Watts	CONN	WGT Lbs' oz"	LEN FT' In"	Max Wind Speed MPH	HRO Price
TrBand Base Station Repeater Antennas								
GP-15	6m/2m/70cm	3/6 2/8.6	200	SO-239	2'15"	7'11"	90	$149.95
GP-93	2m/70cm/23cm	4.5/7.2/10	200	N-Female	2'8"	5'7"	112	$129.95
GP-98	2m/70cm/23cm	6.5/9.0/13.5	100	N-Female	3'6"	9'4"	90+	$189.95
CX-333	2m 220/70cm	6.5/7 8/9.0	120	SO-239	3'10"	10'2"	112	$169.95
TriBand Mobile Antennas								
SB-15	6m/2m/70cm	2.15/4.5/7.2	120	PL-259	–	4'10"	–	$89.95
SB-97	2m/70cm/23cm	3.0/6.8/9.6	100	N-Male	–	3'3"	–	$79.95
SBB-224	2m/220/70cm	2 15/3.2/5.5	150	PL-259	–	3'1"	–	$74.95
SBB-224NMO	2m/220/70cm	2.15/3.2/5.5	150	NMO	–	3'1"	–	$74.95
CA-HV	40/(20)/15/10/ 6/2m	HF 0 dBi 2m 3.4 dBi	120 SSB HF 100W FM 6/2m	PL-259	MAX 1'3"	MAX 6'3"	–	$134.95
CA-UHV	40/(20)/15/10/ 6/2m/70cm	HF 0 dBi 2m 3.4 dBi	120 SSB HF 100W FM 6/2m	PL-259	MAX 1'3"	MAX 6'3"	–	$149.95
L-14	Opt 20M coil for CA-HV						–	$31.95
L-18	Opt 17M coil for CA-HV						–	$39.95
HA-4S	40/(20)/15/10m	0 dBi	120 SSB 7-24MHz 200W SSB 14MHz	PL-259 /NMO		4'4"	–	$159.95
L-14HS	Opt 20M coil for HA-4S						–	$39.95
L-18HS	Opt 17M coil for HA-4S						–	$39.95

Comet Single Band and HT Antennas

MODEL	BANDS	GAIN	Max Pwr Watts	CONN	LEN FT'In"	HRO Price
Single Band Antennas						
SBB-25/SBB-25NMO	2m	4.1	100	PL-259/NMO	4'8"	$44.95
SB-44	70cm	5.5	130	PL-259	37"	$44.95
HT Antennas						
CH-32 MINI Ant	2m/70cm	–	10	BNC	1.75"	$33.95
SMA-501 MINI Ant	2m/70cm	–	10	SMA	1.5"	$29.95
SMA-3	2m/70/23cm	1.2/1.7/3.4		SMA	9.75"	$41.95
SMA-24	2m/70cm	2.15/5.3	20	SMA	17.5	$22.95
BNC-24	2m/70cm		20	BNC	17.5	$22.95
SMA-503	2m/70cm	–	10	SMA	8.5"	$29.95
CH-75	2m/70cm	–/3.2	50	BNC	14.75	$25.95
SH-95	2m/70/23cm	1.5/2/5.5	10	BNC	15"	$34.95

6 Meter Antennas

MODEL	Description	FREQ	GAIN	F/B	Max Pwr Watts	CONN	SWR	LEN FT'In"	HRO Price
CA-52HB4	4 element beam	50-54 MHz	–	19 bD	400 W PEP	SO-239	<1.5:1	10'6 Boom	$109.95
GH-50	Vertical (no radials	50-54 MHz	2.15	–	60 FM	SO-239	<2.0:1	7'11 Ht	$99.95

Comet High-Power Duplexers and Triplexers

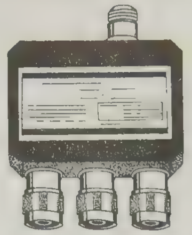
Zinc-alloy, die-cast, twin cavity, low input loss, high-isolation, and high-power. Modernize your station with Comet high-performance antenna products.

MODEL	PORT	Freq MHz	CW Watts	PEP Watts	Loss dB	Isol dB	Mix Conn	Port Conn	HRO Price
CF-416A (2m/70cm)	LPF HPF	1.3-150MHz 400-540MHz	450 300	800 500	0.15 0.25	60 60	SO-239	PL-259 w/leads PL-259 w/leads	$46.95
CF-416C (2m/70cm)	LPF HPF	1.3-150MHz 400-540MHz	450 300	800 500	0.15 0.25	60 60	N-Female	PL-259 w/leads N-Male w/leads	$49.95
CF-4160I (2m/70cm)	LPF HPF	1.3-150MHz 400-540MHz	450 300	800 500	0.1 0.2	60 60	SO-239	PL-259 w/o leads N-Male w/o leads	$45.95
CF-4160K (2m/70cm)	LPF HPF	1.3-150MHz 400-540MHz	450 300	800 500	0.1 0.2	60 60	SO-239	PL-259 w/o leads PL-259 w/o leads	$45.95
CF-413B (70cm/1.2GHz)	LPF HPF	1.3-150MHz 350-500MHz 840-1.4GHz	450 300 100	800 500 200	0.25 0.25 0.4	55 55 55	N-Female	PL-259 w/leads N-Male w/leads	$74.95
CF-530 (6M/125-470)	LPF HPF	1.3-90MHz 125-470MHz	350 350	600 600	0.2 0.2	45 45	SO-239	PL-259 w/leads PL-259 w/leads	$69.95
CF-360A (10m/6m)	LPF HPF	1.3-30MHz 50-470MHz	350 350	600 600	0.2 0.2	45 45	SO-239	PL-259 w/leads PL-259 w/leads	$69.95
CF-142 (2m/220MHz)	LPF HPF	1.3-1150MHz 200-480MHz	300 200	600 400	0.2 0.3	40 50	SO-239	PL-259 w/leads PL-259 w/leads	$79.95
CF-706 (2m/6m)	LPF HPF	1.3-56 MHz 75-320 MHz	350 350	600 600	0.4 0.4	40 40	SO-239	PL-259 w/cable PL 259 w/cable	$74.95
CFX-431B (2m/70cm/1.2)	LPF BPF HPF	1.6-60MHz 100-150MHz 350-500MHz 840-1.4GHz	600 450 300 100	1KW 800 500 200	0.2 0.2 0.3 0.4	50 50 50 50	N-Female	PL-259 w/leads N-Male w/leads N-Male w/leads	$85.95
CFX-4310B (2m/70cm/1.2)	LPF BPF HPF	1.6-60MHz 100-150MHz 350-500MHz 840-1.4GHz	600 450 300 100	1KW 800 500 200	0.15 0.25 0.25 0.3	50 50 50 50	N-Female	PL-259 w/leads N-Male w/leads N-Male w/leads	$79.95
CFX-4310C (2m/70cm/1.2)	LPF BPF HPF	1.6-60MHz 100-150MHz 350-500MHz 840-1.4GHz	600 450 300 100	1KW 800 500 200	0.15 0.25 0.25 0.3	50 50 50 50	N-Female	PL-259 w/leads N-Male w/leads N-Male w/leads	$79.95
CFX-514 (6m/2m/70cm)	LPF BPF HPF	1.3-90MHz 130-200MHz 380-500MHz	450 450 300	800 800 500	0.2 0.25 0.3	55 55 55	SO-239	PL-259 w/leads PL-259 w/leads PL-259 w/leads	$79.95
CFX-514J (6m/2m/70cm)	LPF BPF HPF	1.3-90MHz 130-200MHz 380-500MHz	450 450 300	800 800 500	0.15 0.2 0.25	55 55 55	SO-239	SO-239 w/o leads SO-239 w/o leads SO-239 w/o leads	$79.95
CFX-324A (2m/220/70cm)	LPF BPF HPF	1.3-150MHz 200-320MHz 390-500MHz	350 350 350	600 600 600	0.2 0.25 0.3	40 40 40	SO-239	PL-259 w/leads PL-259 w/leads PL-259 w/leads	$88.95
CFX-324B (2m/220/70cm)	LPF BPF HPF	1.3-150MHz 200-320MHz 390-500MHz	350 350 350	600 600 600	0.2 0.25 0.3	40 40 40	SO-239	PL-259 w/o leads PL-259 w/o leads PL-259 w/o leads	$85.95

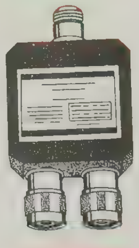
Comet Mobile Mounting Systems

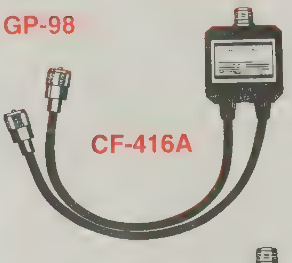
Comet has a wide variety of mobile moounts. Choose the mount and coax cable assembly that best fits your personal needs. All Comet cables have detachable connectors.

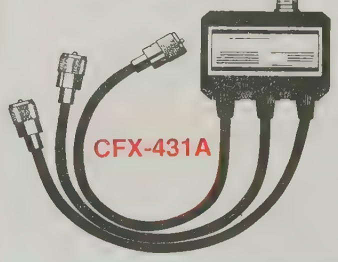
MODEL	DESCRIPTION	HRO Price
3D4M	Standard coax assy. 13ft low loss (3.5mm) coax w/UHF Connectors	$24.95
3D4N	-Ditto- But with N-Type Connectors	$28.95
CK-3M5	17ft high quality cable inc 12" RG-188 to avoid water leak/cable damage. UHF Conn.	$39.95
CK-5N	-Ditto- But with N-Type Connectors	$47.95
5D4N	13ft VERY low loss (5mm) cable assy. For 1.2GHz. N-Type Connectors	$34.95
	The following Mounts are w/o Coax. Choose from the Cable Assembly Above.	
RS-520	Small/Heavy Duty Trunk/Hatch Mount	$29.95
RS-720	Multi-Purpose Mount, Trunk-Lip/Hatch-Back, Black, Adj to any position	$29.95
RS-720NMO	Multi-Purpose Mount, Trunk-Lip/Hatch-Back, Black, Adj to any position, accepts NMO mount	$29.95
RS-9	Trunk-Lip Mount, Black. For small antennas. (B-10, B-20, CHL-23J, etc)	$11.95
CM-5M	Standard Hvy-Duty Mag Mt w/RG-58A/U, Coax, UHF Conn, Max Antenna Height 4ft	$24.95
MS-5LXNN	-Ditto- But with N-Type Connectors	$61.95
GR-5M	Deluxe trunk-lip mount w/CK-3M5 Cable, UHF connectors	$67.95
GR-5N	Deluxe trunk-lip mount w/CK-5N Cable, N-Type connectors	$69.95

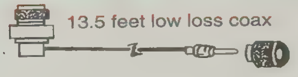

CFX-4310C

GP-98


CF-4160K

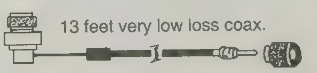

CF-416A


CFX-431A



3D4M(N) Detachable Connector

RG-188 provides easy entry into the vehicle from an exterior mount.



10 inches RG-188 **CK-3M5/CK-5N** Detachable Connector

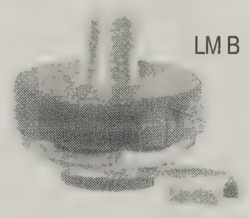
Free UPS Brown Shipping on Most Orders Over $100.

Choosing Your Larsen Mobile Antenna

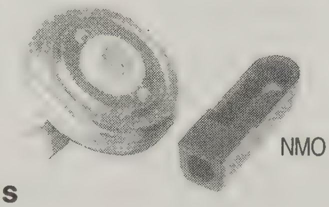
Choose your antenna configuration based on the frequency, base type (e.g., magnetic mount) and thread type (e.g., NMO). Keep in mind that it is necessary to select a base with the same mounting style as the antenna. Typical bases and styles are shown below.

Thread Types

These are examples of each of the thread types. Select one and then select the base.

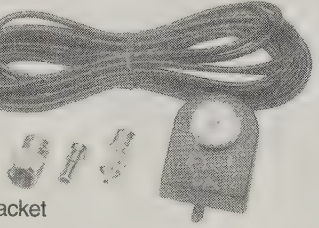

LM B

PO B

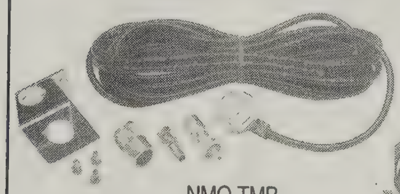

NMO B

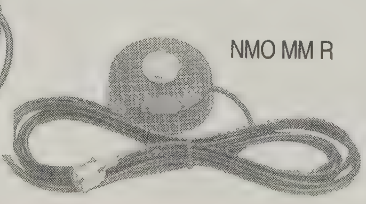
Mount Configurations

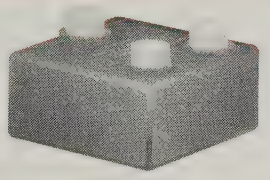
In addition to the popular Motorola 3/4" (NMO) mounts shown here, mobile antennas for the Larsen mount (LM) and PO mount (PO) are excellent choices for amateur use. Each of these mounts comes in one of the thread types.


NMO TLP

Mounts:
NMO K premium quality rooftop.
NMO MM mag mount, 90# pull strength.
NMO TLP heavy duty trunk lid.
NMO TMB electropolished trunk gutter bracket


NMO TMB

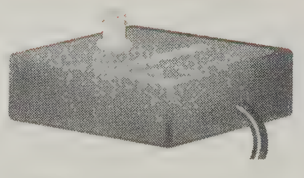

NMO MM R



Duplexer

AD 2 / 70 VHF / UHF Duplexer

Useable Bandwidth: . VHF 120-230 MHz
.... UHF 320-500 MHz
Crossover Frequency: .... 283 MHz
Suppression: .... VHF @ 450 MHz 50 dB
.... UHF @ 150 MHz 60 dB
Impedance: .... 50 Ohm nominal all ports
Power: .... 100 Watts
Insertion Loss: .... 0.3 dB
Connectors: .... SO-239 all ports



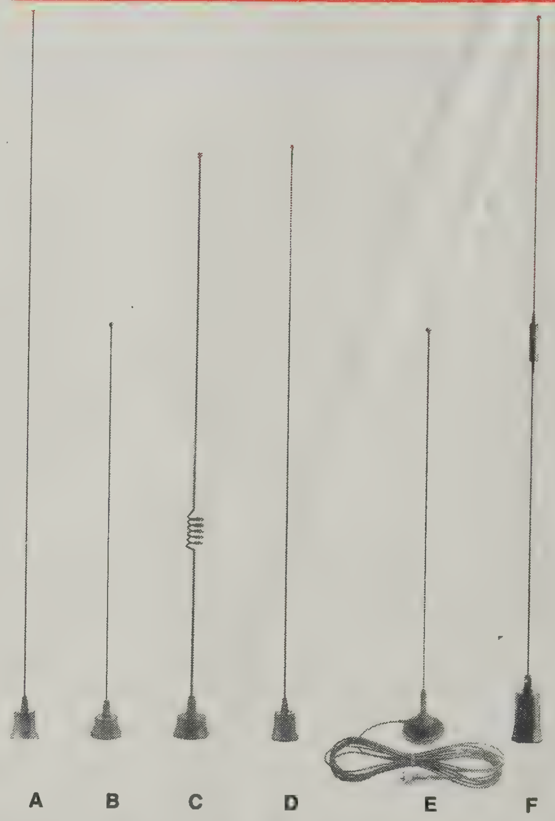
Magnetic Mount

BNC MM BNC

Connectors: BNC on the mag and coax. Coax: RG 58 A/U, 12'

Rubber Ducks On Page 94

NMO Series Antennas



Once the base and thread type are selected, the final step is to choose the antenna. Gain antennas are made of a coil and a whip. Quarter wave antennas are just a whip. All Larsen mobile antennas meet the industry's most demanding specs for electrical efficiency and mechanical durability.

- VSWR at 1.5 to 1 or less.
- Colors: Black coil base; chrome or all black whip.
- 3-year No-Nonsense Warranty.™
- Made in USA

Ⓐ **NMO 150 B (2m)**
Frequency: .... 144-174 MHz
Gain: ....3 dB
Electrical: .... 5/8 Wave
Height: .... 49"

Ⓑ **NMOQ C**
Frequency: .... 144-448 MHz
Gain: .... Unity
Electrical: .... 1/4 Wave
Height: .... 22" max.

Ⓒ **NMO 440 B (70cm)**
Frequency: .... 440-460 MHz
Gain: ....3 dB
Electrical: .... 5/8 over 1/4
Height: .... 30"

Ⓓ **NMO 220 B (1.25m)**
Frequency: .... 220-225 MHz
Gain: ....3 dB
Electrical: .... 5/8 Wave
Height: .... 32"

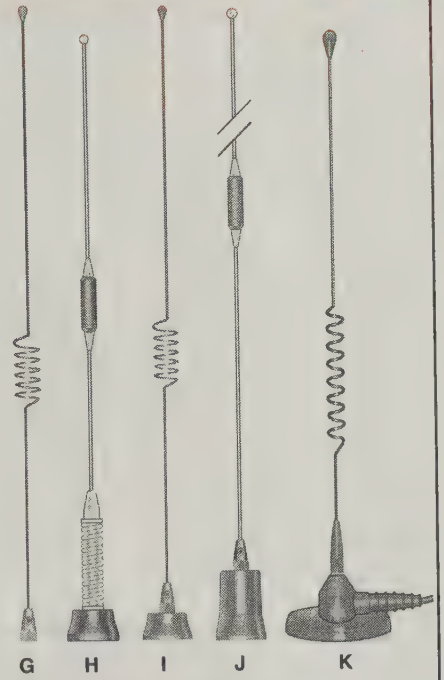
Ⓔ **MS 144 FME**
Frequency: .... 144-148 MHz
Gain: .... Unity
Power: ....35 watts
Electrical: .... 1/4 Wave
Base: .... 2" Mini Mag
Height: .... 22"
Coax: .... 12' RG 174
Connector: .. FME Universal (Adapters available in BNC, PL, MPL, SPIN SMA, TNC)
Also available in MS220 FME, MS440 FME.

Ⓕ **NMO 2 / 70**
Frequency: 144-148MHz
.... 442-448 MHz
Gain: 4 dB VHF; 2.4 dB UHF
Electrical: ..... 5/8 wave VHF
.... Collinear UHF
Height: 2m / 70cm Dual band

Dual-Band Antennas

Larsen dual band antennas provide excellent performance on 2m and 70 cm. Each antenna is factory preset to guarantee optimal performance with no tuning required.

- Range of dual band configurations are available.
- Kulrod copper-plated 17-7 stainless steel rods for greater transmit range.
- Soldered contacts.
- Premium materials and construction provide superior electrical performance and mechanical durability.
- VSWR 1.5:1 or less.
- 3-year No Nonsense Warranty.



Ⓖ LMC 2 / 70 B

Frequency: 144-148/440-450 MHz
Gain: .... Unity
Power: .... 100 Watts
Type: VHF: Center load 1/4 wave
.......: U HF: Center load 3/4 wave
Base: .... Q CONE LMC B
Height: .... 18"

Ⓗ NMO 2 / 70 SH

Frequency: 144-148/440-450 MHz
Gain: .... Unity
Power: .... 100 Watts
Type: VHF: Center load 1/4 wave
.... UHF: Center load 3/4 wave
Base: NMO UHF base B w/spring
Height: .... 17"
Whip: .... W NMO 2/70 SH

Ⓘ NMOQ 2 / 70 B

Frequency: 144-148/440-450 MHz
Gain: .... Unity
Power: .... 100 Watts
Type:V .... VHF: Center load 1/4 wave
.... UHF: Center load 3/4 wave
Base: .... NMO UHF base B
Height: .... 18"
Whip: .... W NMOQ 2/70 B

Ⓙ NMO 2 / 70 C

Frequency: 144-148/440-450 MHz
Gain: .... 2.4/4 dB
Power: .... 100 Watts
Type: .... 5/8 Wave; Collinear
Base: .... NMO 2/70 BCO
Whip: .... W 2/70
Height: .... 36 3/4"

Ⓙ NMO 2 / 70 B

Frequency: 144-148/440-450 MHz
Gain: .... 2.4/4 dB
Power : .... 100 Watts
Type: .... 5/8 Wave; Collinear
Base: .... NMO 2/70 BCO
Whip: .... W 2/70 B Open coil
Height: .... 33 1/2"

Ⓚ MM 2 / 70 PL

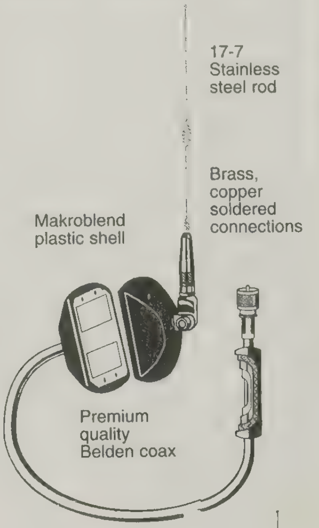
Frequency: 144-148/440-450 MHz
Gain: .... Unity
Power: .... 100 watts
Coax: RG58 A/U Dual Shield, 12'
Pull strength: .... 54 lbs.
Type: VHF: Center load 1/4 wave
.... UHF: Center load 3/4 wave
Base: ...... 3" round magnet mount
Connector: .... PL 259 installed
Weight: .... 1 lb.
Height: .... 17"

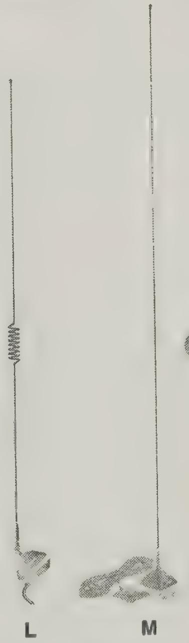
Call Toll-Free for Quotes on Larsen Antenna

On-Glass Antennas

Larsen's advanced design techniques in glass-mount antennas result in superior transmit range plus tremendous mechanical durability. Glass mount performance is nearly identical to rooftop mounts, with no holes to drill. Properly installed on-glass antennas grip for years under demanding conditions, yet are easy to remove and remount..

- Patented low-impedance design is electrically efficient.
- Single-band antennas are precut, 1/2 wave design.
- Transformer outside vehicle.
- Copper plated whips.
- Rated 50 watts output.
- VSWR at 1.5 to 1 or less.
- Less than .5 dB loss through glass vs. rooftop.
- New circuit board technology locks in solid state performance.
- 3M's best on-glass adhesive grip.
- Made in USA with 3 year No-Nonsense Warranty™


17-7 Stainless steel rod
Brass, copper soldered connections
Makroblend plastic shell
Premium quality Belden coax

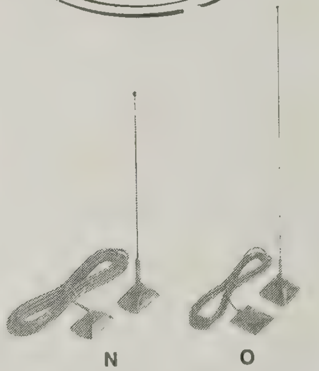


Dual-Band

The KG 2/70 is a VHF half-wave and a UHF collinear. It comes with 14 feet of RG-58/U coax. The antenna installs easily on any flat surface. Remove the whip without tools for car washes or low garages. **HRO Price $84.95**

Ⓛ KG 2/70-CX-PL (Dual)

Frequency: 144-148/442-448 MHz
Gain: .... 2.4 dB VHF; 4.5 UHF
Power: .... 50 Watts
Type: .... 1/2 wave / Collinear
Connector: .... PL 259 (loose)
Height: .... 32-3/4"



Single Band

Ⓜ KG 144 PL (2m)

Frequency: .... 144-160 MHz
Gain: .... 2.4 dB
Type: .... 1/2 Wave
Connector: ..... PL 259 (loose)
Height: .... 45"

Ⓝ KG 440 PL (70cm)

Band: .... 440-460 MHz
Gain: .... 2.4 dB
Type: .... 1/2 Wave
Connector: ..... PL 259 (loose)
Height: .... 11-3/4"

Ⓞ KG 220 PL (1.25m)

Band: .... 220-224 MHz
Gain: .... 2.4 dB
Type: .... 1/2 wave
Connector: ..... PL 259 (loose)
Height: .... 24"

DIAMOND ANTENNA

The Standard by Which All Others are Judged

- Wide-band performance
- Highest gain
- Fiberglass radome
- Factory adjusted
- DC grounded
- UPS shippable
- High wind rating
- Stainless hardware

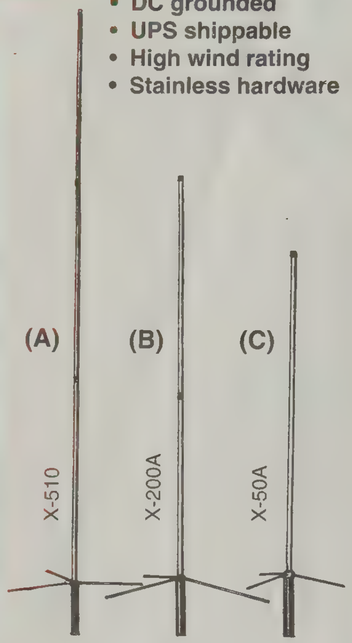
Diamond Base Antennas

Model	Bands	Gain, dB	Watts	Conn .	WT (lbs)	Lth (ft)	MPH (no ice)	Fig	HRO Price
CP-22E	2m	6.5	200	UHF	3	9	90	B	$59.95
DP-GH62[2]	6m	6	200	UHF	7	21	80	B	$139.95
F-22A	2 m	6.7	200	UHF	5	10.5	112	B	$99.95
F-23A	2 m	7.8	200	UHF	8	15	90	A	$129.95
F-142A	1 1/4 m	5.5	150	UHF	2	6	135	C	$119.95
F-718A[1]	70 cm	11.5	250	N	5	15	90	A	$199.95
F-1230A	23 cm	13.5	100	N	5	10.5	90	B	$159.95
U200A	70 cm/23 cm	8.3/11.7	100	N	3	6	135	C	$129.95
U5000	2m/70/23cm	4.5/8.3/11.7	150	N	3	6	135	C	$129.95
V2000A[2]	6m/2m/70cm	2.1/6.2/8.4	150	UHF	4	8.3	110	B	$149.95
X-50A	2 m/70 cm	4.5/7.2	200	UHF	3	5.6	135	C	$99.95
X-50NA	2 m/70 cm	4.5/7.2	200	N	3	5.6	135	C	$99.95
X-200A	2 m/70 cm	6.0/8.0	200	UHF	4	8.3	112	B	$139.95
X-300A	2 m/70 cm	6.5/9.0	200	UHF	4	10.5	90	B	$159.95
X-510NA	2 m/70 cm	8.3/11.7	200	N	5	17.2	90	A	$189.95
X-510MA	2 m/70 cm	8.3/11.7	200	UHF	5	17.2	90	A	$189.95
X-500HA	2 m/70 cm	8.3/11.7	200	UHF	7	17.8	90+	A	$249.95
X-500HNA	2 m/70 cm	8.3/11.7	200	N	7	17.8	90+	A	$249.95
X-700HNA	2 m/70 cm	9.3/13.0	200	N	12	24	90	-	$399.95
X-700HA	2 m/70 cm	9.3/13.0	200	UHF	7	24	90	-	$399.95
X-2200	2 m/1 1/4 m	6.0/7.8	200	UHF	4	10.6	112	B	$169.95
X-3200A[3]	2m/1 1/4m/70cm	6.0/7.8/8.0	100@	UHF	4	10	112	B	$209.95
X-6000A	2m/70/23cm	6.5/9.0/10.0	100	N	5	10	112	B	$199.95

All base antennas grounded for lightning protection.

Factory adjusted for American Amateur Bands - No tuning required

1. F718: 440-450; F718J: 430-440; F718L: 420-430
2. 52-54 MHz only. DPGH62 is adjustable from 50-54 MHz
3. 146-148 MHz, 100 watts on 2m, 200 watts on 1-1/4m and 70cm.



Diamond Mobile Antennas

Model	Bands	Gain/dB	Watts	Mount	Lth/in	HRO Price
NR-124	23 cm	8.4	100	N	25	$59.95
NR-140A	1 -1/4 m	4	150	UHF	37	$53.95
SG-2000HD	2 m	5.2	250	UHF	62	$89.95
CR-214S[4]	2 m/1 -1/4 m	2.1/3.4	150	UHF	37	$58.95
CR-224A[4]	2 m/1 -1/4 m	5.0/6.0	200	UHF	68	$99.95
CR-320A[#,4,6]	2 m/1 -1/4 m/70cm	2.1/3.8/5.5	100@	UHF	36	$82.95
CR-627B[#,4,5]	6m/2m/70cm	2.1/4.5/7.2	150	UHF	60	$99.95
CR-627BNMO[#,4,5]	6m/2m/70cm	2.1/4.5/7.2	150	NMO	60	$99.95
NR-2C	2m	4.1	150	UHF	55.5	$39.95
NR-72BNMO[#,4]	2 m/70 cm	2.1/2.1	100	NMO	14	$41.95
NR-73BNMO[#]	2 m/70 cm	2.1/5.3	100	NMO	33	$57.95
NR-770HA	2 m/70 cm	3.0/5.5	200	UHF	40	$56.95
NR-770HNMO	2 m/70 cm	3.0/5.5	200	NMO	41	$56.95
NR-770HB[#]	2 m/70 cm	3.0/5.5	200	UHF	40	$59.95
NR-770HBNMO[#]	2 m/70 cm	3.0/5.5	200	NMO	41	$59.95
NR-770R	2 m/70 cm	3.0/5.5	200	UHF	39	$51.95
NR-770SA[4]	2 m/70 cm	2.1/2.1	100	UHF	17	$41.95
NR-2000NA	2 m/70/23 cm	3.1/6.3/9.7	100	N	39	$89.95
SG6000NMO[4,5]	6 m	2.15	150	NMO	39	$64.95
SG7000A[4]	2 m/70 cm	2.1/3.8	100	UHF	18	$69.95
SG7200NMO	2 m/70 cm	3.2/5.7	150	NMO	38	$86.95
SG7500	2 m/70 cm	3.5/6.0	150	UHF	41	$79.95
SG7500NMO	2 m/70 cm	3.5/6.0	150	NMO	42	$79.95
SG7900	2 m/70 cm	5.0/7.6	150	UHF	62	$109.95
SG9600[4,5]	6 m/2 m/70 cm	-/2.15/5.2	60	UHF	33	$92.95

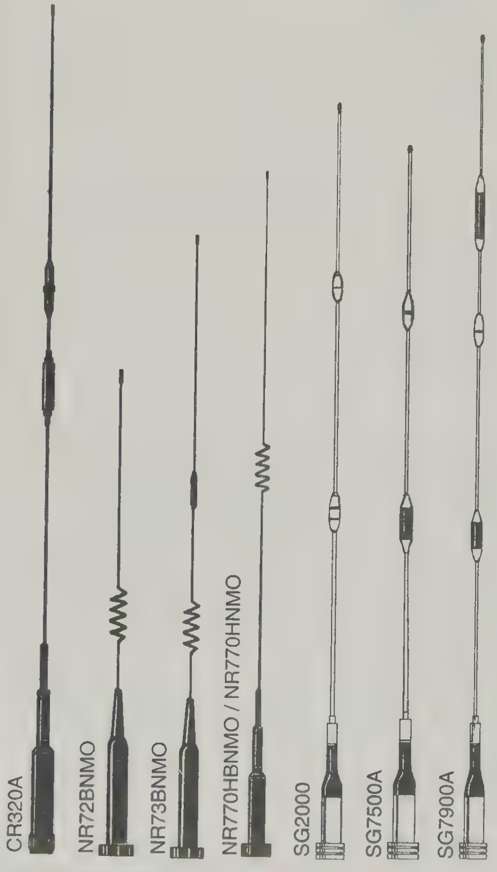
Factory adjusted for American amateur bands, no tuning required.

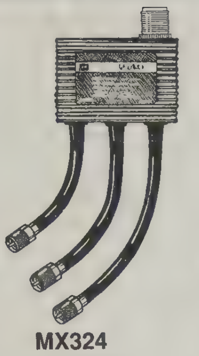
Mobile antennas have foldover feature with spring loaded hinge (except NR770SA,NR72BNMO, NR73BNMO).

Magnetic mount not recommended for antennas over 50".

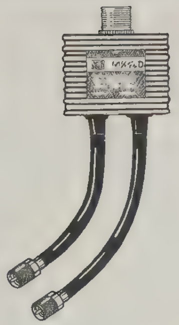
Black Anodized finish

4. Magnetic Mounts not recommended. Vehicle Ground required
5. 52-54 MHz only. 6. 100 watts on 1-1/4m; 200 watts on 2m and 70 cm

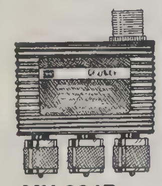




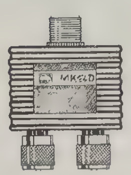
MX324
MX-2000
MX-3000
MX-3000N



MX-37
MX-72H
MX-72N
MX-214



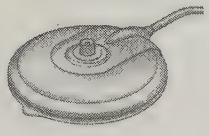
MX-324D
MX-2000D
MX-3000D



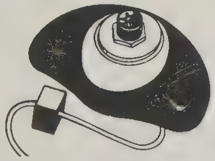
MX-72D
MX-214D

Diamond Duplexers and Triplexers

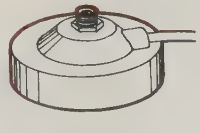
Model	Port	Freq MHz	CW Watts	PEP Watts	Loss dB	Isol. dB	MIX Conn.	Port Conn.	HRO Price
MX-37	LPF HPF	1.6 - 470 900 - 1300	100 50		.25 .25	45 45	N-Jack (F)	UHF-Male/12" cable N-Male/12" cable	$64.95
MX62M	LPF HPF	1.6 - 56 76 - 470		600 600	.3 .3	50 50	SO-239	PL-259/12" cable PL-259/12" cable	$74.95
MX-72D	Similar to MX-72H, but Direct Connection								$43.95
MX-72H	LPF HPF	1.6-30 140-150 440-460	400 150 100	1KW 400 250	.1 .1 .2	60 60 60	SO-239	PL-259/12" cable PL-259/12" cable	$46.95
MX-72N	Similar to MX-72H, but type-N on UHF port								$49.95
MX-214	LPF HPF	140-150 220-225	150 100	400 250	.3 .4	45 45	SO-239	PL-259/12" cable PL-259/12" cable	$68.95
MX-214D	Similar to MX-214, but Direct Connection								$68.95
MX-324	LPF BPF HPF	1.6-60 220-225 400-550		800 600 500	.3 .4 .4	40 40 40	SO-239	PL-259/12" cable PL-259/12" cable PL-259/12" cable	$99.95
MX-324D	Similar to MX-324, but Direct Connection								$99.95
MX-2000	LPF BPF HPF	1.6-60 110-170 300-950		800 800 500	.15 .20 .25	60 60 60	SO-239	PL-259/12" cable PL-259/12" cable PL-259/12" cable	$84.95
MX-2000D	Similar to MX-2000, but Direct Connection								$79.95
MX-3000	LPF BPF HPF	1.6-160 350-500 850-1300		800 400 200	.15 .25 .30	55 55 55	N-Jack(F)	PL-259/12" cable PL-259/12" cable N-male/12" cable	$79.95
MX-3000D	Similar to MX-3000, but Direct Connection								$79.95
MX-3000N	LPF BPF HPF	1.6-160 350-500 850-1300		800 400 200	.20 .30 .40	55 55 55	N-Jack(F)	PL-259/12" cable N-Male/12" cable N-male/12" cable	$85.95



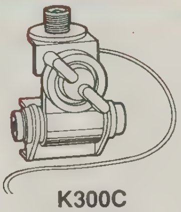
K702M



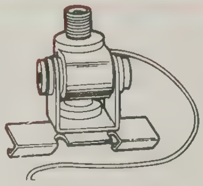
K600M



SPM35
SPMNMO
DPK4NM-M



K300C
K300KM

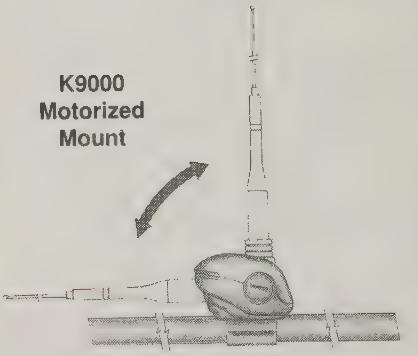


K400C
K400CNMO
K400N, K400-3/8C

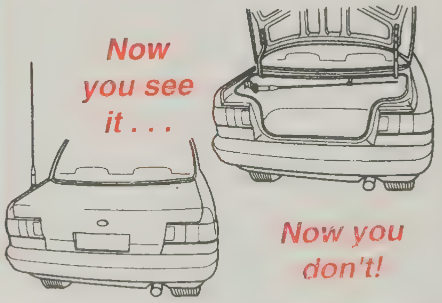
Diamond Mobile Mounts

Model	Description	HRO Price
C101	UHF base 6.5' RG316 Teflon coax w/PL259	$29.95
C101NMO	NMO base 6.5' RG316 Teflon coax w/PL259	$29.95
C110BNC	10' rg316 cable extension with BNC. For front radio installations	$22.95
C110	10' mini-8/RG8X cable extension for front radio installation	$14.95
C211	Combination of C101 and C110. 16.5 feet cable assembly	$39.95
C213	UHF base, 13.5' RG316 Teflon Coax with PL-259	$37.95
C213NMO	NMO base, 13.5' RG316 Teflon Coax with PL-259	$37.95
DPK-4NM-N	Type N Magnet. 13' 5mm coax w/Type-N plug. Good to 1300 MHz.	$49.95
K200KM	Black trunk/hatchback mount with fold over feature. 16.5 feet RG-58A/U w/PL-259	$62.95
K300C	Deluxe rain gutter mount. Black, adjustable position. 10 feet RG316 Teflon Coax w/PL259	$69.95
K300KM	Deluxe rain gutter mount. Black, adjustable position. 16.5" RG-58A/U w/PL-259	$67.95
K400-3/8C[7]	Special mount for 3/8X24 thread Antenna. 6.5 feet RG316 w/PL-259	$69.95
K400C[7]	Deluxe mount with UHF type base. 6.5 feet RG-316 Teflon coax w/PL-259	$69.95
K400N	Deluxe mount with type-N base. 13.5 feet RG316 Teflon coax w/type-N connector	$74.95
K400CNMO[7]	Deluxe mount with NMO type base. 6.5 feet RG316 Teflon coax w/PL-259	$69.95
K540KM	Deluxe Mirror/Luggage rack mount. Black, adjustable. 16.5' RG58A/U w PL259	$59.95
K550KM	Deluxe mini van luggage rack mount. Black, adjustable. 16.5' RG58A/U w PL259	$69.95
K600M	Tilt angle (0-9 degrees) trunk mount. Black. RG-188 and low loss 7 mm cable.	$67.95
K601M[7]	UHF hideaway trunk mount. 6.5 feet RG316 Teflon coax w/PL-259	$69.95
K601NMO[7]	NMO hideaway trunk mount. 6.5 feet RG316 Teflon coax w/PL-259	$69.95
K702M	Deluxe low-profile magnet/suction mount. 6.5" diameter, 13' RG58 & PL-259	$49.95
K9000LRM	Motorized mount for luggage rack. Use C-series cable assemblies	$99.95
K9000TM	Motorized mount for trunk lid. Use C-series cable assemblies	$99.95
NMO/UHF	Adapter for imported antennas PL-259 to Motorola NMO base. Max 45" antenna	$17.95
SPM35	UHF type base on heavy 1.5 lb/4" magnetic, 13' 5mm coax/PL-259.	$39.95
SPMNMO	NMO type base on heavy 1.5 lb/4" magnet, 13' 5mm coax with PL-259	$49.95

K9000
Motorized
Mount



K601M / K601NMO



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7. Use C110 for front radio installations

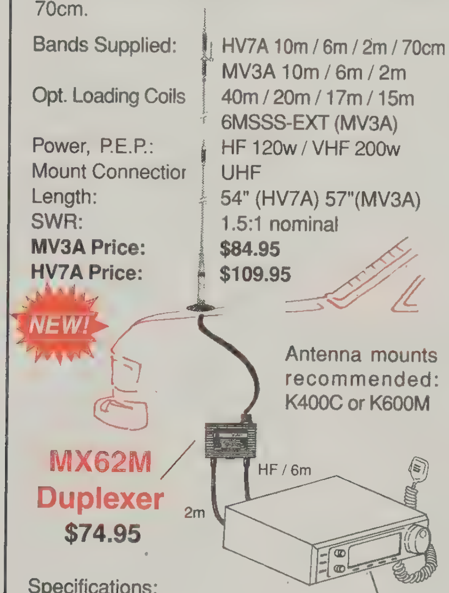
DIAMOND ANTENNA

Mobile Antenna System

Model HV7A 5 Band HF/VHF
Model MV3A 4 Band HF/VHF

MV3A 4 band capability: 2m, 6m, plus two HF bands through use of loading coils. HV7A adds 70cm.

Bands Supplied:	HV7A 10m / 6m / 2m / 70cm
	MV3A 10m / 6m / 2m
Opt. Loading Coils	40m / 20m / 17m / 15m
	6MSSS-EXT (MV3A)
Power, P.E.P.:	HF 120w / VHF 200w
Mount Connectior	UHF
Length:	54" (HV7A) 57"(MV3A)
SWR:	1.5:1 nominal
MV3A Price:	**$84.95**
HV7A Price:	**$109.95**



Antenna mounts recommended: K400C or K600M

MX62M Duplexer

$74.95

Specifications:

- HF / 6m, 2m 70cm duplexer.
- 1.6–56 MHz LPF
- 76–470 MHz HPF
- (76-120 receive only)
- Watts: 600 P.E.P.
- Loss: .2 dB LPF
  .3 dB HPF
- Isolation: 50 dB

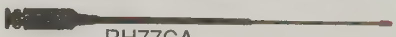
Use with HF/ VHF mobile transceivers such as the IC706 series, Ft-100 or combine 2m and HF rigs.

Optional Loading Coils

HVC7	40m	$39.95
HVC14	20m	$39.95
HVC18	17m	$39.95
HVC21	15m	$29.95

Antennas for Handhelds

RH3 / SRH805 SMA

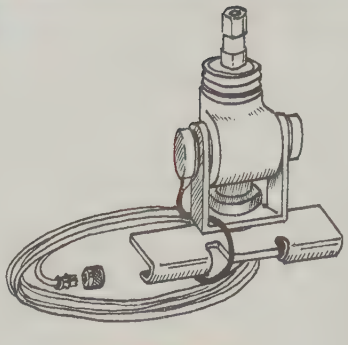

RH77CA

RH951S

RH707

RH205

SRH519 / SRH815 SMA



K400-3/8C Special Trunk Mount for 3/8 x 24 thread Antennas

Here's the ideal mounting system for Outbacker Perth, OB Jr., and other medium weight antennas. A spring is recommended for stiff or heavy antennas.

Power:	350 watts RMS
Cable:	6 1/2' RG316 teflon coax
Connector:	PL-259
Adjustment:	2 axis

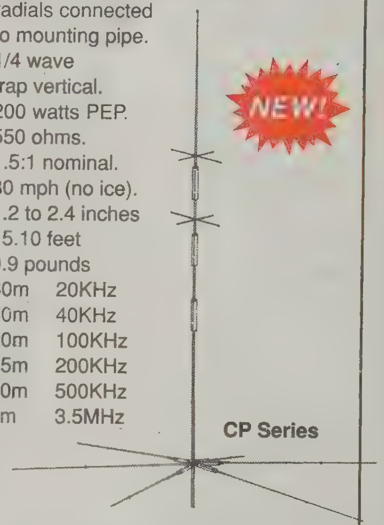
K400-3/8C **$69.95**
Note: Use C110, 10 ft extension for front radio installation. $14.95

HF Multiband Vertical Antennas

The CP5 and CP6 are multiband trap vertical antennas for HF bands covering 80 (CW only, SSB requires a tuner), 40, 20, 15, and 10 meter amateur bands. The CP6 also covers the 6m band. Made from heavy duty aluminum, the antennas are easily assembled, yielding excellent performance and reliability from a compact base station antenna. No additional ground radials required. Mounting hardware included.

CP5 frequency	80* / 40 / 20 / 25 / 10 meters.	
CP6 frequency	80* / 40 / 20 / 25 / 10 / 6 meters.	
Radials	Trap design; CP5 – five; CP6 – six.	
Grounding	Direct grounding; antenna element & radials connected to mounting pipe.	
Element	1/4 wave trap vertical.	
Power	200 watts PEP.	
Impedance	550 ohms.	
VSWR	1.5:1 nominal.	
Max wind	80 mph (no ice).	
Mast diameter	1.2 to 2.4 inches	
Length	15.10 feet	
Weight	9.9 pounds	
Bandwidth	80m	20KHz
(for nominal	40m	40KHz
1.5:1 VWSR	20m	100KHz
without	15m	200KHz
antenna	10m	500KHz
tuner)	6m	3.5MHz

*80m CW only, SSB requires a tuner



CP Series

Diamond Accessories

Model	Description	HRO Price
CX-210A	Heavy duty wideband coax switch, DC-1000 MHz. 1.5 kW, SO-239 connector.	$44.95
CX-210N	Heavy duty wideband coax switch, DC-1500 MHz. 1.5 kW, N connector.	$74.95
CX-310A	Heavy duty 3 position coax switch, wideband. DC-800MHz. SO-239 connectors	$83.95
DL-30A	Dummy load. DC-500 MHz, 15W RMS (max)/100w peak. PL-259 connector.	$27.95
HB-100	Desktop mounting bracket for handheld transceivers	$34.95
HB-400	HT tranceiver dash mount. Clamps to air conditioning louvers	$19.95

Diamond Handheld and Receiving Antennas

Model	Description	HRO Price
D-130J	Wideband discone 25-1300 MHz. 200 W transmit 50-1300 MHz. No cable.	$89.95
RH-3	2m / 70cm dual-band HT antenna. 1.75" BNC. 120-900 MHz receive.	$24.95
RH-77CA	High gain 2m / 70cm dual-band HT antenna. Receive range to 900 MHz. BNC.	$24.95
RH-205	2m HT antenna, telescopic, 5/8 fully extended, 47.5"; 1/4 retracted, 9".	$24.95
RH-519	2m / 70cm slim dual-band HT antenna. Flexible. 8" BNC, 10 watts.	$27.95
RH-707	2m / 70cm dual-band, tiltable whip HT antenna. 8-1/4" BNC.	$33.95
RH-951S	High gain 2m / 70 cm / 23 cm slim tri-band HT antenna. Flexible. BNC (Wide band receive)	$44.95
SRH-519	2m / 70cm slim dual-band HT antenna. Flexible. 8" SMA, 10 watts.	$32.95
SRH-805	2m / 70cm / 23cm tri-band HT antenna. 1.75" SMA, 10 watts.	$27.95
SRH-815	2m / 70cm / 23cm tri-band HT antenna. Flexible. 6" SMA, 10 watts.	$36.95

VHF / UHF MOBILE ANTENNAS

On-Glass Antennas

MOBILE MARK, INC.
COMMUNICATIONS ANTENNAS

On Window Dual Band

This On Window dual band antenna can operate anywhere within the 140-174 and 440-470 MHz bands. Tune UHF or VHF without affecting the tuning of the other band. It provides unity gain. **HRO Price $89.95**

Specifications

Frequency	140-174 MHz 440-470 MHz
Maximum Power	150 Watts
Bandwidth	10 MHz VHF/ 20 MHz UHF
Radiator Length	24 inches (61 cm)
Cable	RG58U, 15.5 feet

antenna specialists

<– **AP-143**

This unique on-glass styling with a coil looks like a cellular antenna. Broad banded. No tuning necessary. The length of the whip is only 26 inches. Black coating on the antenna is very attractive. No ground plane required.

Larsen

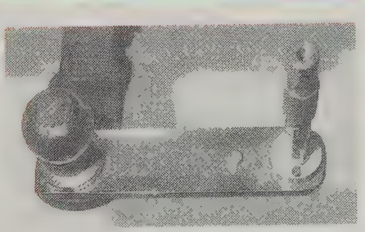
Single Band 1/2-Wave

Model	Antenna Description	HRO Price
KG-144-PL	2 meter	$58.85
KG-220-PL	220 MHz	$58.85
KG-440-PL	440 MHz	$49.15

Larsen's full selection of on-glass antennas for single-band and dual band use are described on page 101. All single band antennas are precut. A single 1/2 wave design provides 2.4 dB gain.

Antenna Mount

Tenna Hitch



HRO Price $35.95

Where can you mount your antenna on a car with no bumpers? Where can you mount your HF antennas without punching holes? Do you want to pull a trailer and ham at the same time? Here is the solution. The Tenna Hitch mounts under the ball of your trailer hitch so you can use your regular antenna for HF operation while still pulling a trailer. Tenna Hitch supports all current HF mobile antennas. It comes with all the hardware necessary for mounting on a trailer hitch.

2m / 70 cm Dual-Band Antennas

There are more dual-band antennas on the following pages:

DIAMOND ANTENNA	PREMIER communications	COMET	pro·am
See Page 102	See Page 94	See Page 98	See Page 90

Brand	Model	Type	Frequency MHz	Gain	Weight oz.	HRO Price
Icom	AH-32	2m	144-148	2.7 dB	8.8	$66.95
		70cm 5/8 collinear	440-450	5.5 dB		
Kenwood	MA-700	2m 1/2 whip	144-148	3.0 dB	7	$99.95
		70cm 5/8 stacked	440-450	5.5 dB		
Larsen	NMO 2/70	2m	144-148	2.6 dB	3.9	$53.95
		70cm 5/8 collinear	440-450	5.5 dB		
Austin	500C	2 m	144 -148	Unity	6	$32.95
		70 cm	440 - 450			
	Metropolitan	2 m	144 -148			$39.95
		220 MHz	220 - 225	Unity	6	
		70 cm	440 -450			
Valor	GM270	2m	144 -148	2.6 dB	–	$29.95
		70 cm	440 - 450	4.0 dB		
	MM270B	2m	144 -148	–	–	$39.95
		70 cm	440 - 450	–		
	PM144-440	2m	144 -148	–	–	$14.95
		70 cm	440 - 450	–		
	MO144-440	2m	144 -148	Unity	–	$16.95
		70 cm	435 - 450	2. dB		

Duplexers

When using a single antenna with mobile radios that have separate 2 meter and 440 MHz outputs, you must use a duplexer.

Diamond has a wide collection of duplexers and triplexers for coupling antennas and transceivers. See page 103.

Yaesu's AD-3 handles up to 50 watts. Its short cables attach to VHF radios with an SO-239 and to UHF with a type N connector. VHF to UHF isolation is 50 dB. **HRO Price $52.95**

Larsen's AD-2 / 70 du-plexer provides a bi-directional passive coupler. Handles 200 watts. VHF/UHF isolation is more than 50 dB. **HRO Price $69.95**

Comet Antenna produces a wide variety of duplexers & triplexers that feature gold-plated connectors, high isolation and the highest power handling abilities. See page 99.

Dual-Band Antennas

NCG

NEW!

Fold-Over, Spring-Loaded Mobile Antennas for 2 m / 70 cm

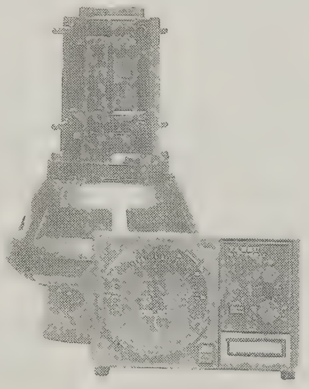
Finally, mobile gain antennas built to withstand the bumps against garages and tree limbs.The MSG spring-loaded whips also include a fold-over hinge to help prevent damage especially on taller vehicles such as vans and SUVs. Both antennas have chrome finish, a PL-259 connector, and take maximum power of 150 W FM.

MSG-1000C Length: 39 inches
Gain: 2.15 / 5.5 dBi
Suggested List Price: $62.95
MSG-1100C Length: 43 inches
Gain: 3.5 / 6.0 dBi
Suggested List Price: $72.95

YAESU

ROTATORS

Yaesu's high quality rotators for amateurs include models for medium to large arrays and for satellite work. There are also provisions for computer control. Contact your nearest HRO for more specifications and discount prices on Yaesu products.



G2800SDX

The G-2800SDX is a high-technology rotator designed to turn the largest tower-mounted antenna arrays.

G-800S / G-800SDX

The G-800 rotator series is designed for medium to heavy loads and antennas up to 20 square feet. The G-800SDX is the same as the G-800S with the addition of presets.

G-1000SDX

The G-1000SDX is designed to handle bigger arrays up to 22 square feet. A great value.

G-450A

The G-450A is ideal for smaller HF and VHF/UHF antennas. Features 360 degree radial compass display with overlap.

Rotator Computer Controllers

The GS-23 Rotator Computer Controller is for the G-800SDX, G-1000SDX and G-2800SDX. **HRO Price GS-23 $319.95**

The GS-232 model is for the G-5400. **HRO Price GS-232 $499.95**

NEW!
HRO Price
$649.95

G-5500

This is the most popular azimuth and elevation rotator for satellite, moon-bounce or other space communications work. It provides horizontal and vertical antenna rotation in a single unit. The control box has two large meters, one showing elevation and the other azimuth. Meter aiming accuracy is within ±4%. The G-5500 provides 180° elevation rotation with a rotation time of 67 seconds. A 360° azimuth rotation takes just 50 seconds. This rotator accepts up to a 2.5" mast, a maximum 1-5/8" horizontal cross-boom and 440 pounds of vertical load. Computer controllable with optional GS-232 computer interface. **HRO Price $649.95**

NEW!

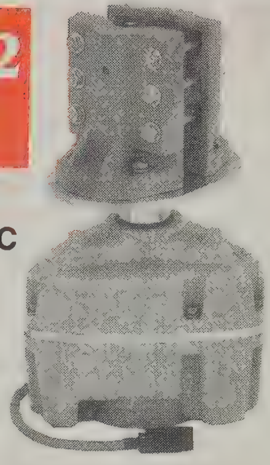
G-550

This is an elevation rotator for satellite work. The control box shows elevation in degrees. **HRO Price $349.95**

Rotator Separation Kit

For some applications it is desirable to separate the azimuth from the elevation rotator on the tower. This separation kit provides all the hardware for the rotator to implement this separation.
HRO Price $23.95

M^2



OR-2800DC Rotator

The Orion OR-2800DC is engineered for long life, reliability and performance while turning large antennas or systems. It has a strong ductile iron mast clamp to support up to 3-1/8" masts (optional long bolts required), extended and hardened drive shaft, and prop-pitch style torque plate. The rotator housing fits inside most popular towers and mates to standard tower / rotator plates.

The RC2800P Control Box has digital readout, variable speed control, slow start, and reverse delay, programmability, preset, 2 rotator capacity, coast-down, true AZ readout-continuous and infinite limit position control.

The USA-made OR-2800DC has a one year warranty. **HRO Price $1399.95**

Wind Area Capacity	35 sq. ft.
Starting Torque	4200 in. lbs.
Rotating Torque	3200 in. lbs.
Breaking Torque	17000 in. lbs.
Vertical Load Capacity	1800 lbs.
Mast Size (O.D.)	1.75-3-1/8"
Rotational Speed (360)	55-270 sec.
Readout Accuracy	1 degree
Input Voltage	110/220 AC 50/60 Hz
Motor Voltage	28-42 VDC
Cable Type	8 conductor
Weight (Rotator unit)	42 lbs.

Rotator Specifications

	Model	Input Voltage	Motor Voltage	Rotation Time	Stationary Torque	Rotation Torque	Maximum Windload	Max. Vert Load	Max. Mast Size	Cable Type	Weight lbs (kg)	HRO Price
M 2	OR-2800DC	110/220 VAC	28 VDC	55 sec	17,000 in lbs	3200 in lbs	35 sq ft	1800 lbs	3-1/8 in	8-wire	42 (19)	$1,399.95
Yaesu	G-450A	110 V	24 VDC	51 sec	217 ft lbs	39.8 ft lbs	10 sq ft	242 lbs	2 in	5-wire	7 (3.2)	$249.95
	G-800S	110 VAC	24 VDC	55 sec	3456 in lbs	43-79 ft lbs	17 sq ft	440 lbs	2.5 in	6-wire	10 (4.5)	$349.95
	G-800SDX	110 VAC	24 VDC	55 sec	3456 in lbs	43-79 ft lbs	17 sq ft	440 lbs	2.5 in	6-wire	10 (4.5)	$399.95
	G-1000SDX	110 VAC	24 VDC	55 sec	5200 in lbs	79 ft lbs	22 sq ft	440 lbs	2.5 in	6-wire	15 (6.8)	$499.95
	G-2800SDX	110 VAC	24 VDC	55 sec	20,832 in lbs	219 ft lbs	34 sq ft	880 lbs	2.5 in	6-wire	26 (11.8)	$1,149.95
	G-5500	110 VAC	24 VDC	58 sec	289 ft-lbs	*	10.7 sq ft	440 lbs	2.5 in	6-wire	20(9)	$649.95
	G-550	110 VAC	24 VDC	67 sec	289 ft-lbs	101 ft-lbs	10.7 sz ft	440 lbs	1-5/8 in	6-wire	7.9 (3.6)	$324.95

* Elevation 101 ft-lbs, Azimuth 44 ft-lbs

CONNECTORS / CABLES / COAX

Connectors

Connect Works

Model	Description	HRO Price
B-112XC	BNC for RG-8/X Gold Pin	$3.99
BU-312	BNC to UHF Adapter (BNC-255)	$5.99
NU-312	N to UHF Adapter (4400)	$9.99
SB-312	SMA to BNC Adapter	$9.99
U-245C	4 hole SO-239 Chassis Connector	$1.99
U-311	Double Male UHF (83-877)	$6.99
U-322	UHF Barrel (83-1J)	$4.99
U-332	Long UHF-UHF Barrel (83-1F)	$6.99
U-412	RT. Angle Teflon, Gold Pin (83-1AP)	$8.99
U-512C	UHF "T" (83-1T)	$6.99
UB-312	BNC to UHF Adapter (31-28)	$6.99
UN-312	UHF to N Adpter (14000)	$15.99

Antenna Rope

Synthetic Textiles

Black Dacron® Polyester

This antenna rope is constructed of strong, double braid Dacron® polester. It is black for UV protection and has excellent resistance to mildew and abrasion. The rope ties and cuts easily, sealing effectively with a hot knife. No expensive hardware is required. Sizes and prices shown below.

Size	Model	Strength	HRO Price*
3/32"	ST-3/32-100	260+ lbs	$9.95
3/16"	ST-3/16-100	770+ lbs	$14.95
5/16"	ST-5/16-100	1790+ lbs	$19.95

* Price per 100 feet

Rotator Cable

Belden

Call for Belden Quotes

HRO carries two **Belden rotator cables**. Use standard duty cable for runs up to 100 feet. For longer runs, please use heavy duty cable. Remember, Belden quality is **tops** in the industry

8 wire, standard duty - Model 8448 - 8 wire cable using six #22 and two #18 tinned copper conductors. PVC insulation; chrome PVC jacket.

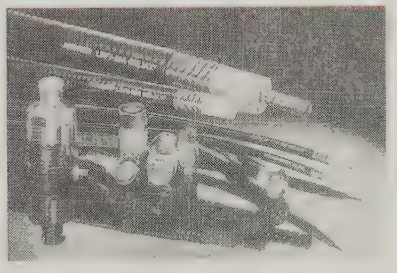
8 wire, heavy duty - Model 9405 - 8 wire cable using 6 - #18 m and 2 - #16 tinned copper conductors. PVC insulation; chrome PVC jacket.

When Ordering Cable

Please order cable in multiples of 50 feet. Lengths up to 1000 feet in a continuous spool can be provided. **Call for quotes.**

Coax & Connectors

ANDREW® NEW!



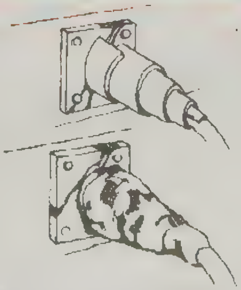
Andrew coax and all the matching connectors you will need are available as a special order drop shipment. Contact your nearest HRO store for complete details.

Model #	Cable Type	Diameter	$/100 feet*
LDF2-50	Foam Dielectric	3/8 inch	189.00
LDF4-50A	Foam Dielectric	1/2 inch	255.00
LDF5-50A	Foam Dielectric	7/8 inch	585.00
FSJ4-50B	Superflex	1/2 inch	373.00

*Plus Shipping

Coax-Seal

Coax-Seal will seal all types of coax fittings, baluns, antenna parts and connectors of any shape. Adheres to most surfaces. Wrap Coax-Seal around the object you want to protect and then mold it into shape. Keeps moisture out of the coax fitting on antenna feed lines. Need to make a change? Just remove it and start over.



Coax

Belden

Coax can be purchased in any length up to 1000 feet. 1000' continuous lengths of 9913 or 8214 must be sent by truck.

8214 - RG8 / U

8214 is a standard RG8 /U, #13 stranded copper center conductor, cellular polyethylene insulation, 97% bare copper shield, PVC jacket, 50 ohm impedance, 78% velocity factor and 1.8 dB loss per 100' at 100 MHz. The most popular cable for HF/VHF/UHF. Use when long cable runs are not required.

RG213 / U

RG-213 / U coax, #13 stranded copper center conductor, solid polyethylene insulation, 97% bare copper shield, non-contaminating PVC jacket, 50 ohm impedance, 66% velocity factor and 2.2 dB loss per 100' at 100 MHz. This RG-8 type cable is best for HF use. It may be buried.

9913 / 9913F

9913 is RG8-type coax, #9.5 solid copper conductor, semi-solid polyethylene insulation, 100% foil plus 88% braid shield, PVC jacket, 50 ohm impedance, 84% velocity factor and 1.4 dB loss per 100' at 100 MHz. The best cable for VHF and UHF applications. Use **9913F** for more flexible runs (subject to availability).

9258 - RG8X

RG8X is small diameter coax, #16 stranded copper center conductor, cellular polyethylene insulation, 95% bare copper shield, PVC jacket, 50 ohm impedance, 78% velocity factor and 3.7 dB loss per 100' at 100 MHz. Good for short VHF runs and most HF uses.

9356 - RG8 / U

100' roll of 8214 RG8 / U coax with PL-259 connectors (crimp type) installed on each end for your convenience.

8000

14 strand "copper weld" bare copper wire. Great for long wires or dipole. High tensile strength.

US TOWER CORPORATION

MA-SERIES CRANK-UP MASTS

The premier MA-Series crank-up Tubular Towers are designed to be both safe and neighbor friendly. The slender design gives a Clean, flagpole-like appearance, while allowing for antennas up to 10 sq. feet in 50 mph winds. Per EIA Specifications, adequate safety margins are included. Uniform Building Code calculations are available for most models.

The MA-40 and 550 models come standard with flat base. two 1/2" x 10" anchor bolts, wall bracket and rotor plate mounted on top of top section. No guying is required when tower is properly bracketed to the eve of your roof.

MA-Series towers are completely self-supporting only when used with accessory MARB or MAB Series bases. The MARB Series rotor base allows the entire tower and antenna to be rotated from the base (rotor not included). This provides for easy rotor maintenance plus emergency hand rotation of the entire tower and antenna.

The MA-550MDP, 770MDP and 850MDP models include a heavy duty motor drive with positive pull down. The MDP models provide motorized raising and lowering of the tower. A remote control unit (RMC-1000) accessory is available that allows raising and lowering from your ham shack or other remote location.

All models without motor drives come standard with manual hand winches which have load actuated brakes for maximum safety. This feature prevents the winch from free-wheeling and causing injury to you or your installation in the event that you lose your grip during raising or lowering.

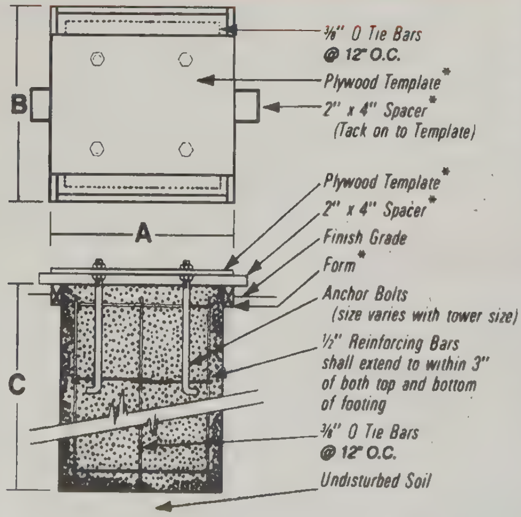
All steel used at US Tower conforms to ASTM specifications. All welding is done by certified factory personnel. All of our towers are factory tested by trained personnel before leaving the plant.

Model Number	Height Maximum	Height Minimum	Sections	Weight Pounds	Sec O.D. Top	Sec O.D. Bottom	HRO Pric
MA-40	40'	21'6"	2	242	3" sq.	4.5"	$679.95
MA-550	55'	22'1"	3	435	3" sq.	6.625"	$1,069.95
MA-550MDP*	55'	22'1"	3	620	3" sq.	6.625"	$2,899.95
MA-770	75'	22'10"	4	645	3" sq.	8.0"	$2,699.95
MA-770MDP*	75'	22'10"	4	830	3" sq.	8.0"	$3,999.95
MA-850MDP*	90'	23'6"	5	1128	3" sq.	10.0"	$5,399.95

All Towers will handle 10 sq. ft antenna at 50 MPH winds.

* These towers also requires purchase of MCL-100 or RMC-1000

MA-SERIES BASE INFORMATION


B
3/8" 0 Tie Bars @ 12" O.C.
Plywood Template*
2" x 4" Spacer* (Tack on to Template)
A
Plywood Template*
2" x 4" Spacer*
Finish Grade
Form*
Anchor Bolts (size varies with tower size)
1/2" Reinforcing Bars shall extend to within 3" of both top and bottom of footing
C
3/8" 0 Tie Bars @ 12" O.C.
Undisturbed Soil

**To be removed after base is installed.*

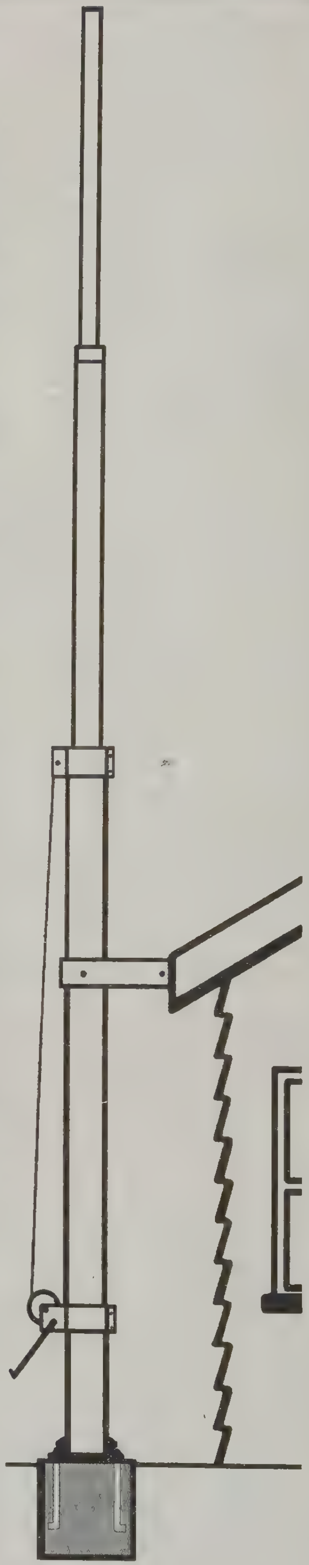
Model	A	B	C	HRO Price
MA-40 standard flat base	16"	16"	16"	CALL
MA-550 standard flat base	20"	20"	20"	CALL
MARB-40 Rotator Base	3'	3'	4'	$549.95
MARB-550 Rotator Base	3'	3'	5'6"	$649.95
MARB-770 Rotator Base	3'	3'	6'6"	$779.95
MARB-850 Rotator Base	4'	4'	6'6"	$919.95

Base dimensions may vary with different soil compositions.
Allow ample time for concrete to cure.
MAB and MARB dimensions are the same.

Tower base hole size and rebar are for illustration only, current UBC engineering calculations should be used to determine your specific installation.

Rebar is not provided by US Tower. MA-40 & 550 use their standard base as a template. These standard bases use only 2 bolts and require no rebar. Wooden template included with MAB & MARB bases.

Because of wide variations throughout the country in zoning requirements and loading conditions (snow, wind, ice, etc.), it is the responsibility of the customer to make Certain that his Tower conforms to all applicable codes. We recommend you obtain all necessary permits prior to purchase .



The factory reserves the right to make changes or modifications without notice.

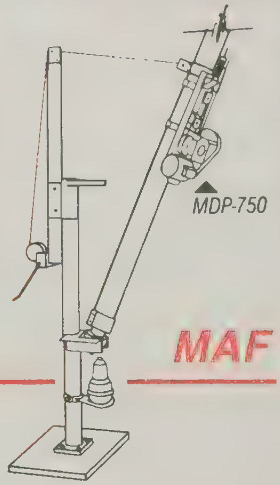
MA-SERIES ACCESSORIES

The Customer is Responsible
for obtaining all local city or county building and tower permits
AND
for taking the tower off the freight truck when it is delivered. Please arrange for adequate help.

MAF Raising Fixture

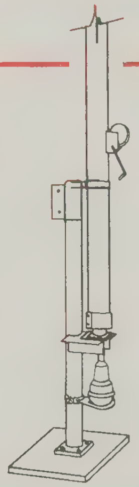
MAF-Series Raising Fixture accessory for easy raising and antenna servicing. For use with MARB and MAB bases.

Model	Description	Weight
MAF-40	Raising fixture for MA-40	35#
MAF-550	Raising fixture for MA-550	70#
MAF-770	Raising fixture for MA-770	75#
MAF-850	Raising fixture for MA-850	80#



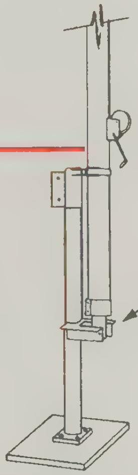
MARB Freestanding Rotator Base

Model	Description	Weight
MARB-40	Freestanding rotator base for MA-40 with four 3/4" x 27" anchor bolts and thrust bearing	75#
MARB-550	Freestanding rotator base for MA-550 with four 1" x 36" anchor bolts and thrust bearing	140#
MARB-770	Freestanding rotator base for MA-770 with four 1" x 36" anchor bolts and thrust bearing	195#
MARB-850	Freestanding rotator base for MA-850 with four 1-1/8" x 36" anchor bolts and thrust bearing	280#



MAB Freestanding Type Base

Model	Description	Weight
MAB-40	Freestanding hinged base for MA-40 with four 3/4" x 27" anchor bolts	55#
MAB-550	Freestanding hinged base for MA-550 with four 1" x 36" anchor bolts	119#
MAB-770	Freestanding hinged base for MA-770 with four 1" x 36" anchor bolts	175#
MAB-850	Freestanding hinged base for MA-850 with four 1-1/8" x 36" anchor bolts	180#



Hinging allows for easy installation on both MAB and MARB Bases.

Coax Standoff Arms

Model	Description	Weight
CX-2M	Coax standooff arms for MA-40	4#
CX-3M	Coax standoff arms for MA-550	6#
CX-4M	Coax standoff arms for MA-770	8#
CX-5M	Coax standoff arms for MA-850	10#
IV-16	The IV-16 slips over the top of the mast and rests at the top of the tower to hold inverted vee antennas. The IV-16 cannot be used with the MARB rotator base.	5#

Call Toll-Free for Discounts on U.S. Towers and Accessories

Motor Drives

Model	Description	Weight
MD-75	Heavy-duty motor drive with one HP motor and gear box.	155#
MDP-750	Heavy-duty motor drive with one HP motor, gear bos, and positive pull down.	185#

Remote Control Accessories

Model	Description	Weight
RMC-1000	Relay operated remote control for raising and lowering your tower from your ham shack or other remote location.	18#
MCL-100	Limit switch control package includes limit switches, limit switch brackets, and control box at the base of the tower.	7#

US TOWER CORPORATION

TMM SERIES

US Tower's *latest design includes the compact TMM Series towers giving Hams in restricted areas an alternative. The TMM Series has a minimum retracted height of 11'4" (may vary, depending on rotator used) and a maximum height of 47' including mast. At the towers' retracted height, visual impact is reduced to a minimum and antenna servicing is made easier. Typically the tower and antenna are below the roof line of your home when the tower is fully retracted.*

The TMM Series towers are lightweight, freestanding crank-up towers that allow up to 18 square feet of antenna in 50 mph winds per EIA specifications. The TMM-433HD handles 24 square feet. These lightweight towers should provide many years of trouble free service. All of our towers have a hot dipped galvanized finish inside and out.

The TMM-433SS and 541SS must have the rotator top mounted. The TM-433HD will accept the Alliance HD-73 and Telex Ham IV inside the tower. Oversized rotators will prevent full retraction of your tower; however, they may be used if full retraction is not required. This restriction is dependent on location of rotator plate. All TMM Series towers include anchor bolts, rotor plate, hinged T-base, load actuated winch, and eight feet of 2" OD x 120" antenna mast.

The TMM-433SS will accept the MD-75 motor drive accessory. The TMM-433HD and 541SS will accept the MD-75 and MDP-750 accessory motor drives. The MDP-750 motor drive accessory is compatible with both of our MCL-100 and RMC-1000 limit switch packages (see accessories).

TX SERIES

US Tower's *freestanding TX Series crank-up towers are as strong or stronger than most competitors' heavy-duty models. The TX Series towers have 21 foot sections with 4 foot overlap to provide extra height and strength. In addition, the overlap helps prevent binding while lowering your tower in high wind and conditions.*

The TX Series towers have a large enough top section (12 1/2") to permit installation of most rotators inside the section for maximum strength while allowing the section to fully retract. Cross bracing at critical points on the tower ensures safety and additional strength. All US Towers crank-up towers have a heavy-duty, hot dipped galvanized finish both inside and out, which should provide many years of trouble free service.

The TX Series towers come complete with rotator plate and base hardware which includes, large steel anchor bolts and heavy-duty steel T-base that allows the tower to hinge on for easy installation. All T-bases will accept the TRX Series raising fixtures for easy one man installation. All TX Series towers include Fulton hand winches (except MDP and MDLP models) which feature automatic load actuated brakes for maximum safety. Masts and motor drives are available as accessories (see accessory page).

The TX-472MDP comes complete with MDP-750 motor drive and limit switch brackets. The TX-489MDPL includes the MDPL-1000 motor drive and limit switch brackets. Limit switch assemblies and remote raising devices are available (MCL-100) (RMC-1000) for all MDP-750 and MDPL-1000 motor drive units (see accessory page for description).

US Tower's TX Series requires no guying. The wind loading is calculated at 18 square feet of antenna in 50 mph winds per EIA specifications. To assist you in applying for necessary construction permits, Uniform Building Code calculations are available for most models.

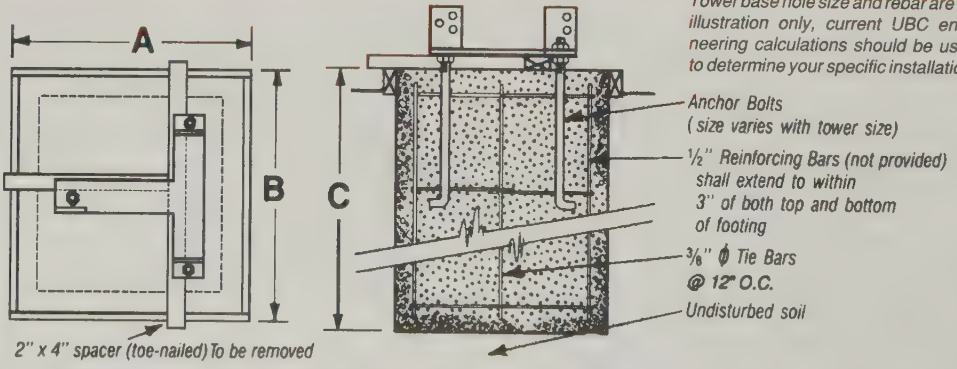
HDX SERIES

US Tower's HDX Series *heavy-duty crank-up towers have up to 2 1/2 times more windloading capacity than others commonly advertised. This superior strength allows for large stacked arrays, while using our commercial type bases and anchor bolts that can be easily installed and vertically adjusted. All HDX Series T-bases are designed to use our TRX Series raising fixtures to make installations and antenna servicing a one man job.*

Modified top sections for the HDR-300 rotators are available at a small additional cost. US Tower carries as accessories many different sizes and strengths of masts which can be used with the HDX Series towers. The HDX-572MDPL and 589MDPL motorized towers provide dual level wind, positive pull down and heavy duty gear box features. The HDX-572MDPL comes only with limit switch brackets. The HDX-589MDPL comes complete with the MCL-100, limit switch package. All towers using MDP-750 and MDPL-1000 motor drives may use the RMC-1000 accessory limit switch package which allows the raising and lowering of your tower from the comfort of your ham shack or any remote location. MCL-100 is also available (see accessory page).

All HDX Series towers come complete with rotator plate, anchor bolts and heavy-duty T-base (doubles as template). US Tower's special T-base design allows the tower to hinge for easy installation. US Tower's crank towers do not require guy wires. The HDX Series towers are rated at 30 square feet of antenna at 50 mph winds per EIA specifications. To assist you in getting a construction permit, Uniform Building Code calculations are available for most towers.

CRANK-UP TOWER BASE INFORMATION


A
B
C
Anchor Bolts (size varies with tower size)
½" Reinforcing Bars (not provided) shall extend to within 3" of both top and bottom of footing
⅜" ϕ Tie Bars @ 12" O.C.
Undisturbed soil
2" x 4" spacer (toe-nailed) To be removed

Tower base hole size and rebar are for illustration only, current UBC engineering calculations should be used to determine your specific installation.

Model	A	B	C
TMM-433SS	3'	3'	4'
TMM-541SS	3'	3'	4'6"
TMM-433HD	3'	3'	5'
TX-438	3'	3'	5'
TX-455	3'	3'	6'
TX-472	4'	4'	7'
TX-489	4'	4'	7'
HDX-538	3'	3'	6'
HDX-555	4'	4'	6'
HDX-572	4'	4'	7'
HDX-589	5'	5'	7'6"
HDX-689	6'	6'	8'6"
HDX-5106	6'	6'	9'

SELF-SUPPORTING CRANK-UP TOWERS

Tower Specifications

COMPACT TMM-SERIES CRANK-UP TOWERS

Model Number	Height Maximum	Height Minimum	Sec-tions	Weight Pounds	Sec O.D. Top	Sec O.D. Bottom	HRO Price
TMM-433SS	33' w/o Mast	11'4"	4	315	10"	18"	$1,219.95
TMM-433HD	33' w/o Mast	11'4"	4	400	12.5"	20 7/8"	$1,479.95
TMM-541SS	41' w/o Mast	12'	5	430	10"	20 7/8"	$1,599.95

All Towers handle 18 sq. ft. antenna at 50 MPH winds. TMM-433HD handles 24 sq.

TX-SERIES FREE-STANDING CRANK-UP TOWERS

Model Number	Height Maximum	Height Minimum	Sec-tions	Weight Pounds	Sec O.D. Top	Sec O.D. Bottom	HRO Pric
TX-438	38'	21'6"	2	355	12.5"	15"	$999.95
TX-455	55'	21'	3	670	12.5"	18"	$1,499.95
TX-472	72'	22'8"	4	1040	12.5"	21 5/8"	$2,479.95
TX-472MDP	72'	22'8"	4	1210	12.5"	21 5/8"	$3,999.95
TX-489	89'	23'4"	5	1590	12.5"	25 5/8"	$4,299.95
TX-489MDPL	89'	23'4"	5	1800	12.5"	25 5/8"	$6,439.95

All Towers will handle 18 sq. ft. antenna at 50 MPH winds.

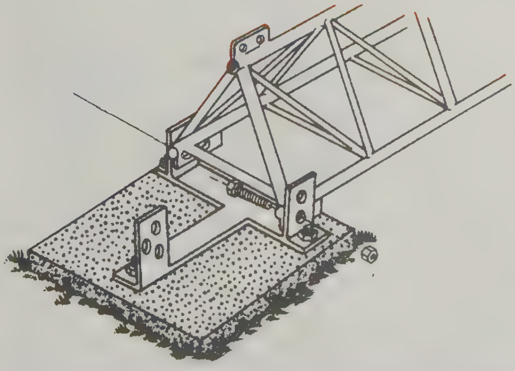
* This tower requires purchase of MCL-100 or RMC-1000

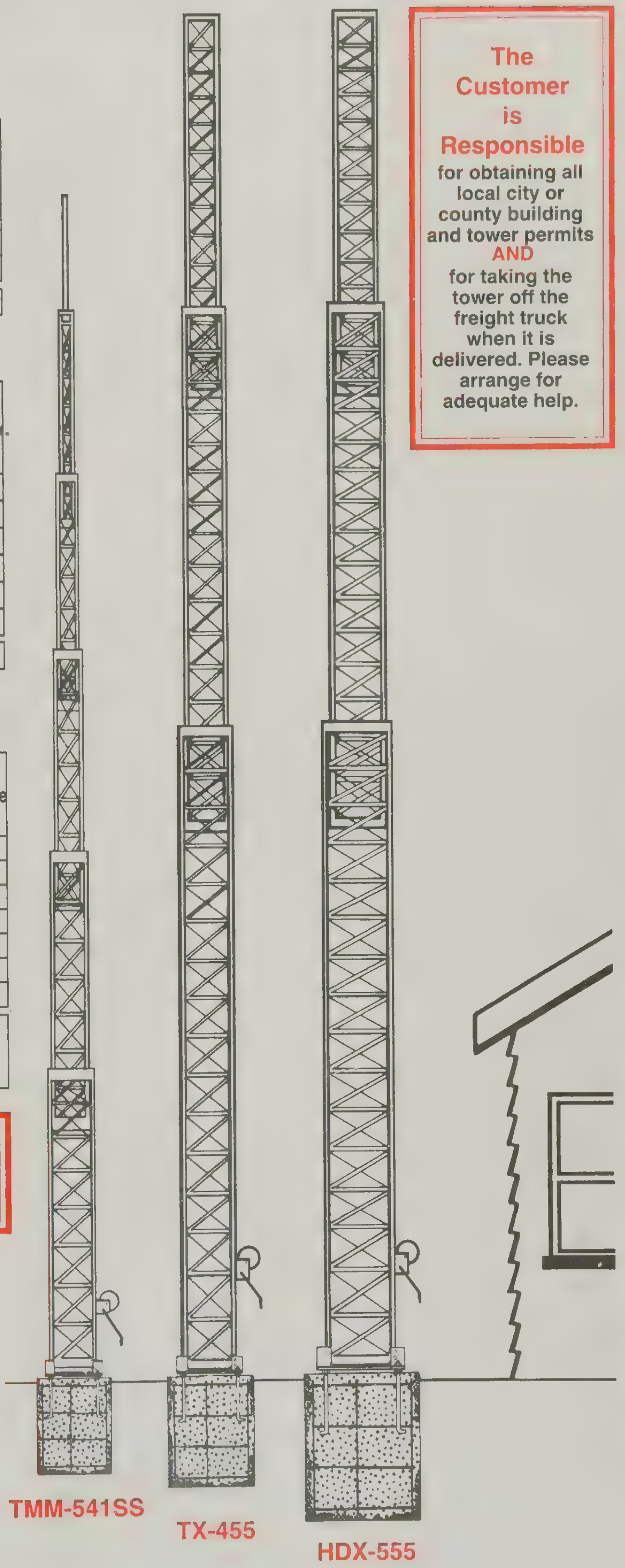
HDX-SERIES HEAVY-DUTY CRANK-UP TOWERS

Model Number	Height Maximum	Height Minimum	Sec-tions	Weight Pounds	Sec O.D. Top	Sec O.D. Bottom	HRO Price
HDX-538	38'	21'6"	2	600	15"	18"	$1,289.95
HDX-555	55'	22'	3	870	15"	21 5/8"	$2,279.95
HDX-572	72'	22'8"	4	1420	15"	25 5/8"	$3,869.95
HDX-572MDPL	72'	22'8"	4	1600	15"	25 5/8"	$5,929.95
HDX-589MDPL	89'	23'8"	5	2440	15"	30 5/8"	$7,729.95
HDX-689MDPL	89'	23'8"	5	3450	18"	37 1/8"	$15,029.95
HDX-5106MDPL	106'	24'8"	6	3700	15"	37 1/8"	$16,649.95

All Towers will handle 30 sq. ft. antenna at 50 MPH winds.
HDX-689MDPL rated at 60 sq. ft of antenna at 50 mph winds.
HDX-5106MDPL rated at 35 sq. ft. of antenna at 50 mph winds.

Call Toll-Free for Discounts on U.S. Towers and Accessories



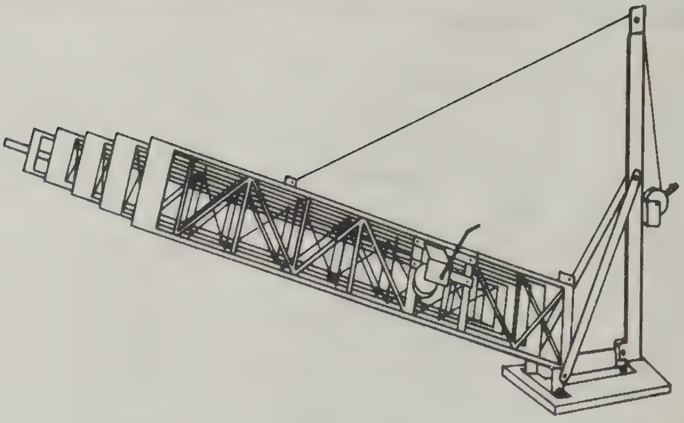


The Customer is Responsible for obtaining all local city or county building and tower permits **AND** for taking the tower off the freight truck when it is delivered. Please arrange for adequate help.

The factory reserves the right to make changes or modifications without notice.

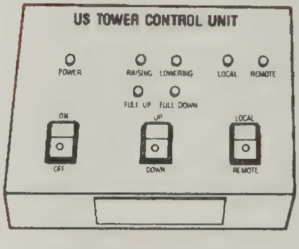
US TOWER CORPORATION

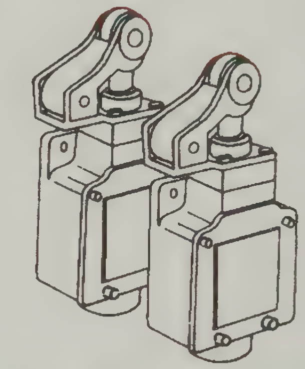
Raising Fixture



Model	Description	Weight
TRX-80	Standard model tower raising fixture for TMM, TX, and HDX series towers.	120#
TRX-80HD	Heavy-duty model tower raising fixture for TX and HDX series towers.	155#
	Both TRX-80 and 80HD are designed to be easily mounted on your tower's hinged T-base for quick and safe one-man installation or antenna servicing.	

Remote Control





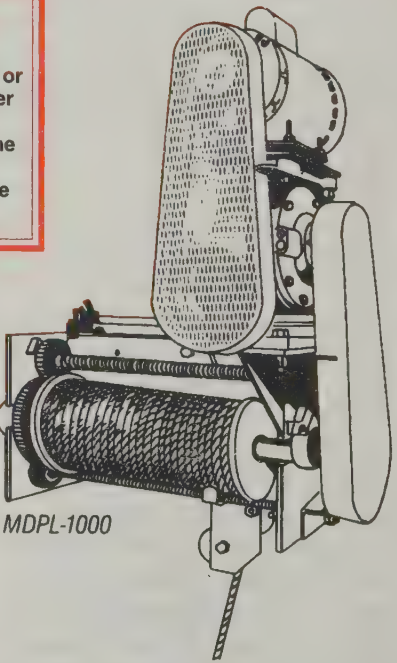
Model	Description	Weight
RMC-1000	Relay operated remote control for raising and lowering your tower from your ham shack or other remote location. The RMC-1000 includes limit switches, limit switch brackets, and two relay boxes. The RMC-1000 can only be used with the MDP-750 and MDPL-1000 motor drives.	18#
MCL-100	Limit switch control package. The MCL-100 includes limit switches, limit switch brackets and control box at the base of the tower. The MCL-100 allows you to raise and lower your tower with automatic shut down when maximum or minimum height is reached. The MCL-100 can only be used with the MDP-750 and MDLP-1000 motor drives.	7#

Motor Drives

Model	Description	Weight
MD-75	Heavy-duty motor drive with 1 HP motor and gear box.	155#
MDP-750	Heavy-duty motor drive with 1 HP motor, gear box and positive pull down. US Tower's positive pull down feature is designed to mechanically apply the same strength in the retraction process as is used in the raising of your tower. Positive pull down is very important in lowering your tower in high wind conditions. The MDP-750 differs from the standard motor drive (MD-75) unit which releases tension on the cables allowing the weight of the upper sections to be the only lowering force.	185#
MDLP-1000	Heavy-duty motor drive with 1 HP motor, heavy duty gear box, positive pull down and dual level wind features. Dual level wind is an exclusive US Tower design allowing the cable to wind on the motor drum in a uniform manner. This prevents the cable from overlapping on the drum. For description of positive pull down see MDP-750.	220#

The Customer is Responsible
for obtaining all local city or county building and tower permits AND for taking the tower off the freight truck when it is delivered. Please arrange for adequate help.

Call factory for replacement 1 HP motors, handwinches, limit switches, 3/16" x 7" x 19" and 1/4" x 7" x 19" aircraft cable, anchor bolts, belts, pulleys, sprockets, and modified bases. Tower dolly rentals are available. The factory reserves the right to make changes or modifications without notice.



MDPL-1000

CRANK-UP ACCESSORIES

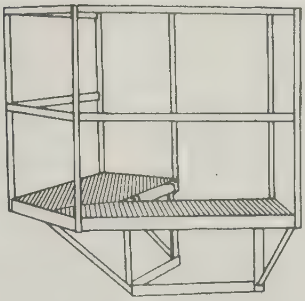
Model	Description	Weight

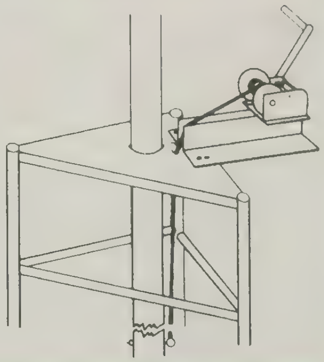
Service Platform

Model	Description	Weight
HDP	Large service platform with safety railings to provide a safe and comfortable surface while installing or maintaining your antenna and rotator.	125#

Mast Raising Fixture

Model	Description	Weight
MRF	Mast raising fixture with winch and cable that attaches to the top of your tower to assist in raising and lowering your antenna mast.	20#



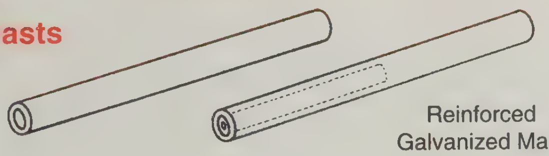


Coaxial Arm Sets

Model	Description	Weight
IV-16	The IV-16 slips over the top of the mast and rests at the top of the tower to hold inverted vee antennas. The IV-16 cannot be used with MARB rotator base.	5#

Model	Description	Weight
CX-2	Set of 2 coax standoff arms	6#
CX-3	Set of 3 coax standoff arms	8#
CX-4	Set of 4 coax standoff arms	10#
CX-5	Set of 5 coax standoff arms	13#

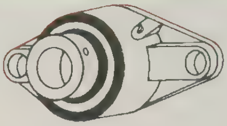
Masts



US Tower offers two different types of masts. The M-5, 10, 15 and 20 masts have .120" wall thickness. The M-15R and 20R have steel pipe inserts in the lower half of the mast which provides extra strength where most needed without adding unnecessary weight in the top portion. The M-15R and 20R have a wall thickness of .250".

Model	Description	Weight
M-5	2" O.D. x 5 foot galvanized mast	14#
M-10	2" O.D. x 10 foot galvanized mast	25#
M-15	2" O.D. x 15 foot galvanized mast	40#
M-15R	2" O.D. x 15 foot reinforced galvanized mast	50#
M-20	2" O.D. x 20 foot galvanized mast	55#
M-20R	2" O.D. x 20 foot reinforced galvanized mast	70#
CM-20	2" O.D. x 20 foot chromolly mast	140#
3/4" x 27"	Anchor bolt with 2 nuts	5#
1" x 27"	Anchor bolt with 2 nuts	10#
1-1/8" x 27"	Anchor bolt with 2 nuts	12#
RP-3	Rotator plate for 10" section	5#
RP-4	Rotator plate for 12.5" section	7#
RP-5	Rotator plate for 15" section	9#

Thrust Bearing



TB-2US	Thrust Bearing for 2" mast, 2 flange holes	10#

Tower Accessories

R – Required
S – Standard

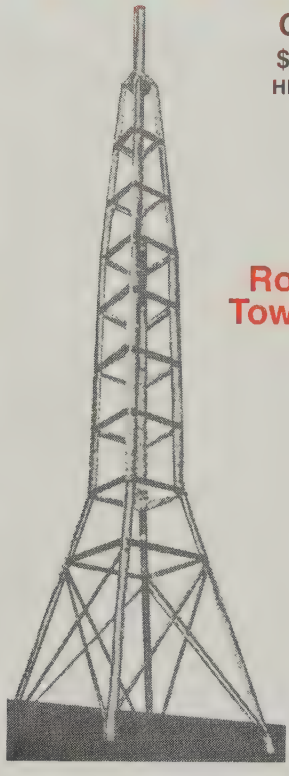
	TX-438	TX-455	TX-472	TX-472MDP	TX-489	TX-489MDPL	HDX-538	HDX-555	HDX-572	HDX-572MDPL	HDX-589MDPL	TMM-433SS	TMM-433HD	TMM-541SS	HRO Price
MASTS															
M-5	O	O	O	O	O	O	O	O	O	O	O	O	O	O	$40.95
M-8												S	S	S	$69.95
M-10	O	O	O	O	O	O	O	O	O	O	O	O	O	O	$77.95
M-15	O	O	O	O	O	O	O	O	O	O	O	O	O	O	$109.95
M-20	O	O	O	O	O	O	O	O	O	O	O				$139.95
M-15R	O	O	O	O	O	O	O	O	O	O	O				$159.95
M-20R	O	O	O	O	O	O	O	O	O	O	O				$209.95
CM-20	O	O	O	O	O	O	O	O	O	O	O				$499.95
RAISING FIXTURE															
TRX-80	O	O					O	O				O	O	O	$439.95
TRX-80HD			O	O	O	O			O	O	O				$569.95
SERVICE PLATFORM															
HDP			O	O	O	O			O	O	O				$819.95
COAX STANOFF ARMS															
CX-2	O						O								$55.95
CX-3		O						O							$77.95
CX-4			O	O					O	O		O	O		$109.95
CX-5					O	O					O			O	$149.95
MOTOR DRIVES															
MD-75	O	O					O	O				O	O	O	$999.95
MDP-750		O	O	S				O					O	O	$1549.95
MDPL-1000			O		O	S			O		S				$2109.95
REMOTE CONTROL															
RMC-1000		O	O	O	O	O		O	O	O	O		O	O	$999.95
MCL-100		O	O	R	O	S		O	O	S	S		O	O	$469.95
MISCELLANEOUS															
3/4" X 27" bolts	S														$26.95
1" X 27" bolts		S			S	S	S		S	S		S			$32.95
1-1/8" X 27" bolts			S	S				S			S		S	S	$43 95
RP-3												S		S	$39.95
RP 4	S	S	S	S	S	S							S		$47.95
RP-5							S	S	S	S	S				$52 95
MRF	O	O	O	O	O	O	O	O	O	O	O		O		$269 95
TB-2US	O	O	O	O	O	O	O	O	O	O	O		O		$99 95
IV-16	O	O	O	O	O	O	O	O	O	O	O	O	O	O	$41.95

TOWERS

CREATE

CR-18
$399.95
HRO Price

Roof Towers



CR-45
$899.95
HRO Price

CR-30
$769.95
HRO Price

Create Roof Towers are constructed of high grade aluminum with galvanized steel bracing for added stability and strength.

The towers will easily accommodate your antenna requirements. The three sizes will support VHF antennas, HF tri-banders and OSCAR systems.

Rotators easily mount inside the towers. An optional thrust bearing (Model #CK46) is recommended. Guying is required on all roof towers. Maximum mast size is 2.5".

Create Roof Towers

Model	Height	Max Antenna Wind Load in Square Feet	Base Width	Max Vertical Load in lbs.	Tower Weight in lbs.
CR-18	5'10"	21 @ 90 MPH	31 1/3"	440	18
CR-30	9'10"	27 @ 90 MPH	39"	1322	33
CR-45	14'9"	23 @ 90 MPH	39"	881	57

Unarco-Rohn

25G & Accessories

25G	10' tower section.
25AG2	Top secton for use with communication antenna. Mast support tube is 2 1/4" O.D., 36" total length, extending 18" above apex of side rails.
25AG4	8' top section for communication antenna. Upper end terminates in 11" diameter flat, circular plate with a 2 1/4" hole in center.
AS25G	Accessory shelf.
GA25GD	Guy assembly
SB25G	3'4" short base section for concrete.
SBH25G	3'4" hinged short base section for concrete.
BPC25G	Concrete base plate.
BPH25G	Hinged base plate for concrete.
HB25AG	Adjustable house bracket (0-15")
HB25BG	Adjustable house bracket (0-24")
HB25CG	Adjustable house bracket (0-36")
HBU	Universal house bracket (6-30").
TB3	Heavy-duty thrust bearing is recommended for 2" O.D. mast.
WP25G	Work platform.
EF2545	Aluminum erection fixture.

Other accessories available.
Rohn towers shipped truck collect.
Call for information and quotes.

Catalog Prices

HRO discount prices shown are current as of October 15, 1999, when this catalog was assembled. Prices change both up and down. Please be sure to call one of our toll-free numbers or check our Web page for the latest prices.

We at HRO strive to offer the most competitive prices in the industry on a full line of quality ham radio products.

Many manufacturers offer "coupons" or similar promotions. Call or check our Web Page at http://www.hamradio.com for the latest manufacturer promotions.

General Information for Our Valued Customers

Easy Ordering

Six toll-free 800 numbers are available for orders. They are located throughout the United States. This provides personnel at one location or another to answer your questions for extended hours Monday through Saturday. You will find the same low prices at all locations and, thanks to computers, we have the stock levels of all locations available to each salesperson for estimates of availability and delivery.

24 Hour "On-Line" Ordering is now available on the INTERNET! URL is *http://www.hamradio.com*

Shipments are made from any of our 12 locations that has the particular items you need in stock. In most cases, the shipment will be made from the location nearest you (if stock is available). HRO is trying to provide the quickest shipments in the industry using these methods.

California customers can now order using a toll-free number. The number is 1-800-854-6046. It is no longer necessary for California customers to pay for the phone call.

Sales Tax

State and local laws require us to collect and remit State sales / use tax on orders shipped from any of our 12 locations INTO Arizona, California, Colorado, Georgia, or Virginia.

You will find that this small extra charge will be more than overcome by the convenience of the largest ham radio inventories in the United States. You will also find courteous and knowledgeable salespeople to assist you. We think you will find HRO to be the company you want backing you when it comes to dealing with any problems you might have with manufacturers or shipping companies.

Phone Orders

To place a phone order using a credit card, please have the following information available if you are a first-time caller or have not made a recent purchase from HRO. We will ask for your callsign (if any), credit card number, expiration date, your home telephone number, and possibly the name, address, and telephone number of the bank listed on your charge card statement.

Payment

We accept Visa, MasterCard and Discover Card. Personal checks are also accepted; however, processing time will delay shipment by some 10 days. When using a credit card, please have the card in front of you since we will need all the information, including the name of the issuing bank. If the card holder's BILLING address differs from the shipping address, please be sure to specify both addresses and telephone numbers. For your protection, we thoroughly investigate the validity of all credit card purchases.

COD Orders

COD payments must be made in cashiers check or money order at the time of delivery. There is a small fee for COD shipments.

Commercial Sales Purchase Orders

Written purchase orders will be accepted from city, state, and federal agencies, and, with prior approval of credit, from commercial organizations. HRO quotes, in most cases, prices that require payment on receipt of merchandise. You may find a surcharge for credit terms applied to your pricing. Please indicate that you require terms when calling for price quotes.

Delivery

Free UPS Ground Transportation in the continental US on most items over $100.

All Alaska and Hawaii shipments via UPS must be shipped by Blue Label (2nd Day Air) or Red Label (Overnight). Please ask for charges.

In a Hurry? If you find it necessary to expedite shipments, UPS has Red Label (overnight), Blue Label (2nd-day) and Orange Label (3 day) services available at an extra cost. Please request charges for these services.

Foreign Deliveries We ship world-wide. Contact our stores, preferably by fax, with your needs. We can give you quotes and details for placing your foreign order. Payment methods include wire transfer direct to our bank as well as payment by VISA/ MC charge cards or check drawn in U.S. Funds from a U.S. Bank. Shipments are made (depending on size) by UPS, FED EX, Emery, DHL, or international air mail. Some orders to some foreign countries cannot be insured to the full value.

Truck Delivery On day of delivery, if by truck, please be sure to have enough help, and / or proper equipment on hand for unloading merchandise. Truck drivers are NOT required to provide assistance. If you are not experienced at handling large, awkward items such as towers, antennas or amplifiers, please ask properly trained people to assist you.

Canadian Orders can now be shipped via UPS. These costs will be added to your invoice.

Damaged Items

UPS If the item is obviously damaged, note this with the driver and refuse shipment. This item will be returned to HRO and another will be sent at no additional charge. If hidden damage is noted, contact UPS as soon as possible. They will arrange pickup. Once the item is received by HRO, a replacement will be sent.

TRUCK If there is damage or the shipment is short, it is the customer's responsibility to file the claim with the trucking company. At the time of receipt of item, it is recommended that you have the driver write "damaged" or indicate shortage on the bill of lading he gives to you. Be sure to have the same notation as well as drivers signature on his copy also.

MAIL It is the customer's responsibility to file all loss or damage claims with the postal department.

Prices

Many prices shown are suggested list price. In most cases we offer large discounts. Equipment manufacturers constantly change prices, offer specials or react to the Dollar / Yen exchange rates. Simply call one of our 800 numbers and our staff will be happy to quote you the current selling price of the item you are interested in. Prices are subject to change without notice or obligation to the customer. Sorry, we cannot honor typos in this catalog.

Software

Software is sold on a non-returnable basis. Any software problems will be resolved under the terms of the manufacturer's warranty.

Lost Items

When your order is delivered, please carefully count items and if anything is missing, notify HRO at once.

Occasionally, cartons shipped at the same time will arrive at their destination two or three days apart.

If you notify HRO within 10 days, we will replace lost or damaged items after completion of proper documentation and acceptance by the shipping agency.

New Equipment Returns

Products are not sold for evaluation. Under some circumstances (at the discretion of HRO) and with prior approval of the store of purchase, HRO will accept an item for return. Under most circumstances a 15% restocking fee and all freight charges will be assessed.

Your means of refund for returns will be the same as that used for your original payment except for cash, which will be refunded by check. HRO will pay from its corporate offices. It can take up to two weeks.

Defective merchandise may be returned within 10 days of the original purchase for exchange. Original receipt must accompany the return. Items returned for warranty replacement consideration must also include a completed, signed, "Warranty Replacement Certification Form." Customers who return equipment for replacement consideration without this form completed and signed cannot be considered for any possible warranty replacement, only warranty repair. No exceptions. Contact your salesman for details.

Manufacturer's New Equipment Warranties

Ham Radio Outlet supports all manufacturers' warranties. Actual warranty terms are included within the shipping container of most items. If needed, you may request from any of our locations a free copy of the manufacturer's written terms for any warranteed product. Please request by model number and indicate the page in this catalog that represents the product.

Ham Radio Outlet will in many cases provide in-store repairs; please contact the store of purchase for information. It will be necessary to provide us with the invoice number and purchase date, as most manufacturers need this information to process under their FREE warranty repair terms.

New Equipment Warranty Returns

When returning equipment for repair, please pack the item in original packing material or something similar to provide adequate protection during the shipping process. Note on box: "ATTENTION SERVICE." Include a copy of your purchase invoice, and a complete and detailed description of the problems. Without the invoice or a complete description, delays will be experienced in providing the proper service and returning the item to you. Be sure to insure the package for its replacement cost.

HRO will repair or replace the defective item at our option. If the item is found to be defective under the terms of the manufacturer's warranty, no charge will be made for service or return shipping within continental USA. It is the customer's responsibility to ship all defective items to the service center for warranty repair.

Problems

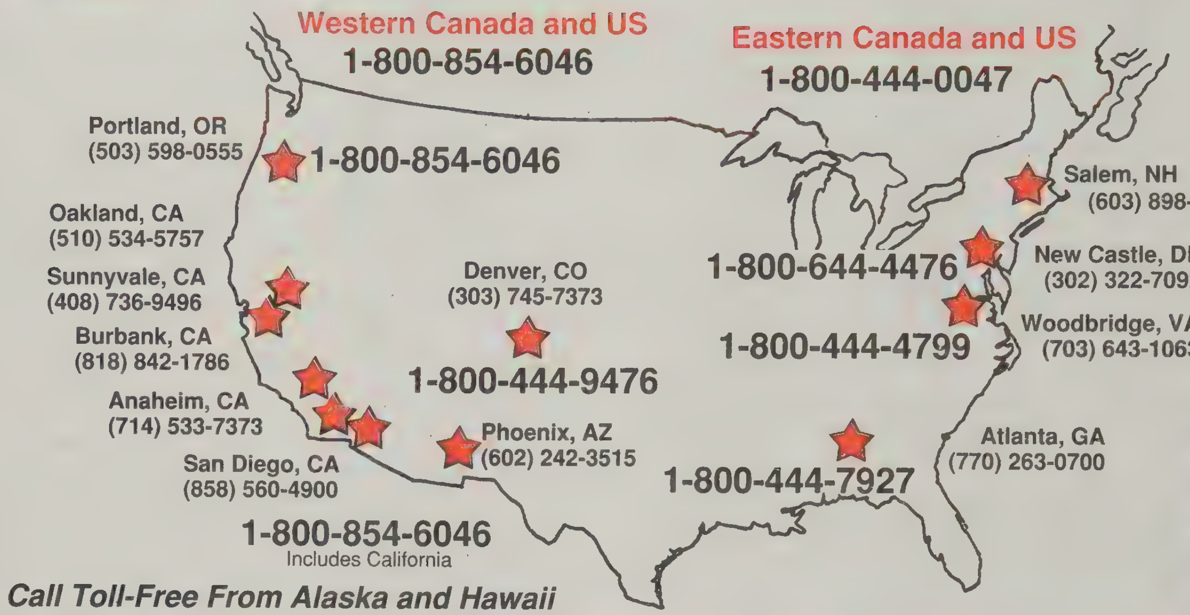
HRO prides itself in its ability to service the customer. If there is a problem please contact the manager of the store from which you purchased the merchandise. If for some reason, your problem cannot be corrected by that store manager, please feel free to call Ham Radio Outlet Corporate Headquarters at (925) 831-1771 and explain the situation. At this point our national sales staff will see that your problem is corrected.

Thank You for choosing

HAM RADIO OUTLET

The World's Largest Ham Outlet

Serving You From Coast to Coast and Around the World



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Eastern Canada and US
1-800-444-0047

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San Diego, CA
(858) 560-4900

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Includes California

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Order Toll-Free From a Location Near You

If your closest 800 number is busy, please call one of our other numbers.
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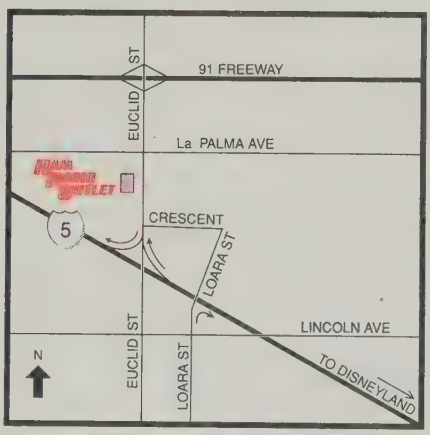
12 Locations!

24-Hour Internet Ordering: http://www.hamradio.com

24-Hour FAX Order Lines: At All 12 Locations



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LINCOLN AVE
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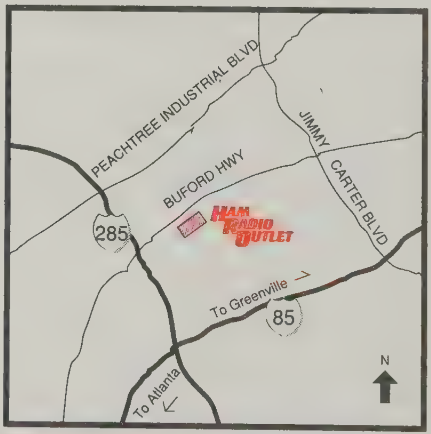
Mike WB6VUB, Dan N6PEQ
Tom KF6BSL, Jerry KN6JK
Richard WW7D
Ted KB6CUS, Ken N6CCE



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Phil N4DRO **Mgr**
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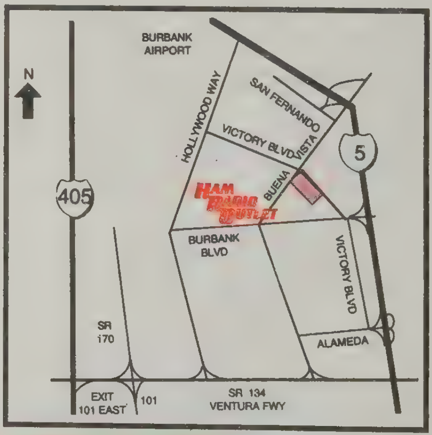
Peri KC4CQS
Rick WD4ABO
Bill KF8AZ,
Denise, David WA8VMI



BURBANK AIRPORT
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SAN FERNANDO
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VISTA
BUENA
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BURBANK BLVD
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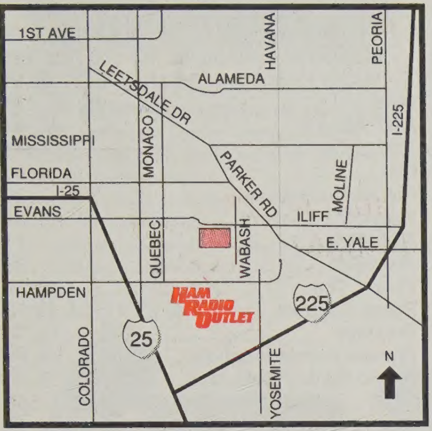
Eric KA6IHT **Mgr**
Don KB6EPB
Christie K0IU
Sud AC6VP
Al W2WJ

All Stores Open 10am - 5:30pm Monday - Saturday STORE LOCATIONS


1ST AVE
ALAMEDA
HAVANA
PEORIA
LEETSDALE DR
MISSISSIPPI
FLORIDA
I-25
EVANS
MONACO
PARKER RD
MOLINE
I-225
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WABASH
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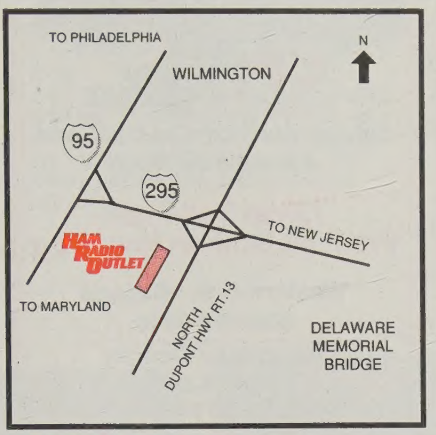
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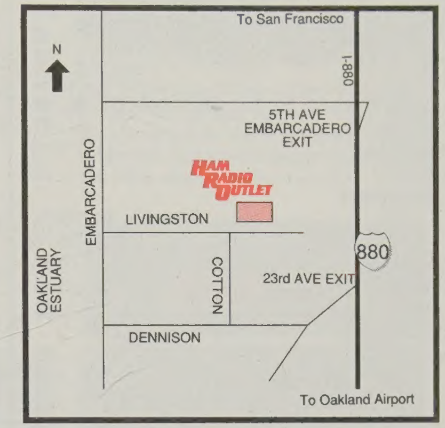
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I-880
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EMBARCADERO
HAM RADIO OUTLET
LIVINGSTON
880
OAKLAND ESTUARY
COTTON
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Brent N6XBH
Cliff KK6SJ, Don W6ER
Frank KD6UE
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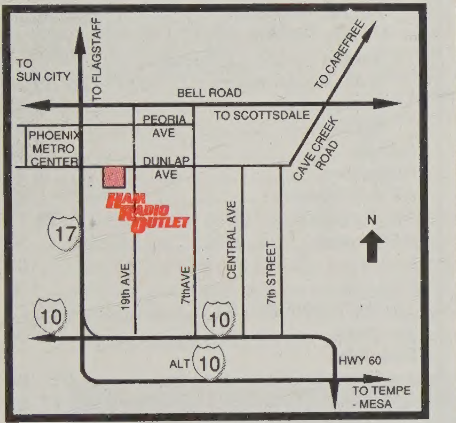
Marcus KE6LEV


TO SUN CITY
TO FLAGSTAFF
TO CAREFREE
BELL ROAD
PEORIA AVE
TO SCOTTSDALE
PHOENIX METRO CENTER
DUNLAP AVE
CAVE CREEK ROAD
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7th STREET
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ALT 10
HWY 60
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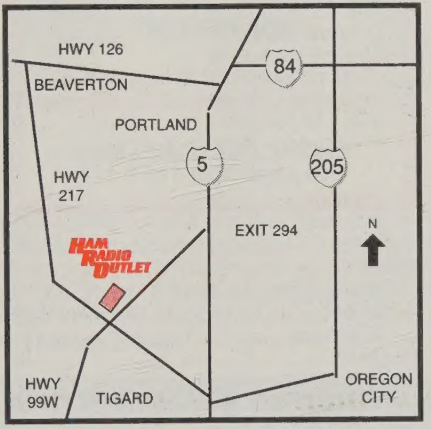
HWY 126
84
BEAVERTON
PORTLAND
5
205
HWY 217
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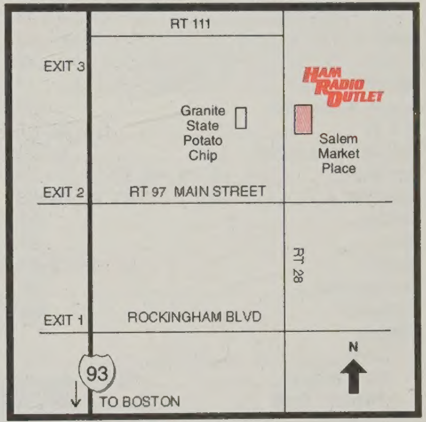
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EXIT 3
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Granite State Potato Chip
Salem Market Place
EXIT 2
RT 97 MAIN STREET
RT 28
EXIT 1
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93
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Manuel HI8MT, Art K1GBX
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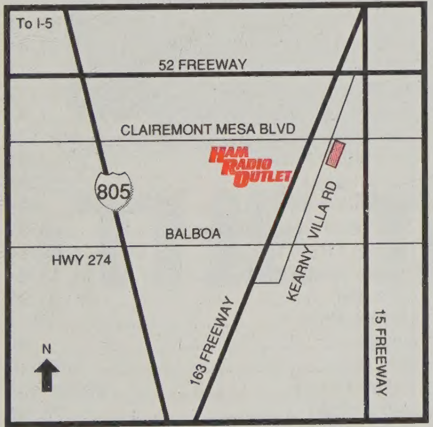
Jeff KA1SHL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KEARNY VILLA RD
BALBOA
HWY 274
163 FREEWAY
15 FREEWAY
N

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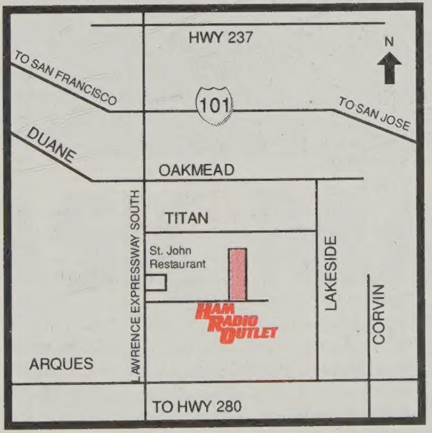
Ron N6OMW
Jose XE2SJB
Gerry N5MCJ


HWY 237
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TO SAN FRANCISCO
101
TO SAN JOSE
DUANE
OAKMEAD
TITAN
LAWRENCE EXPRESSWAY SOUTH
St. John Restaurant
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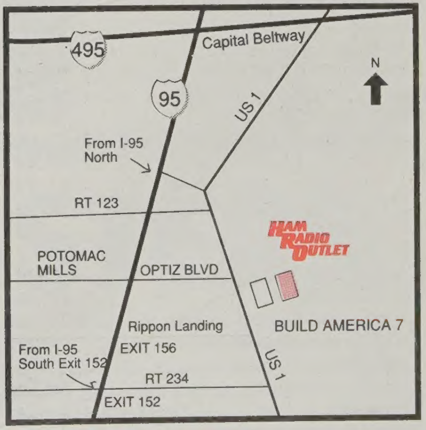
Rob W6KR
George WB6DSV
Roy W6II, Jim W6KVA
Don AA6W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Capital Beltway
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95
US 1
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RT 123
HAM RADIO OUTLET
POTOMAC MILLS
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BUILD AMERICA 7
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RT 234
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